PRINTING EQUIPMENT ENGINEER

Edited for those concerned with the use and care of Printing Equipment

APRIL
1931

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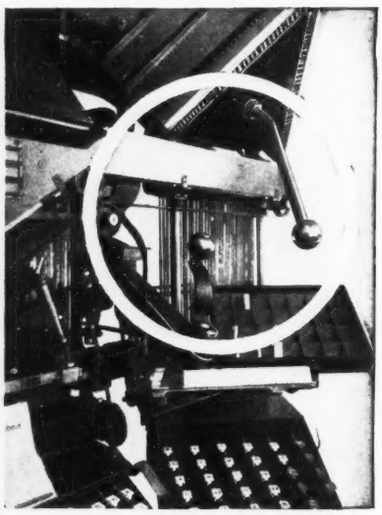

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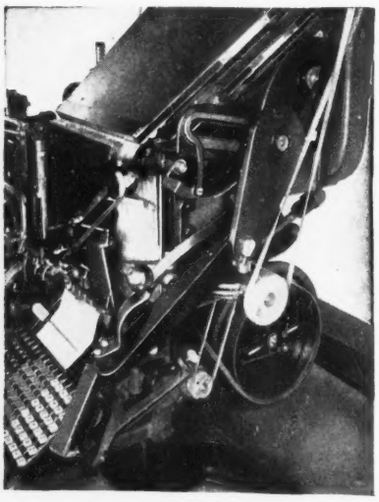

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PRINTING EQUIPMENT ENGINEER

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Check in left column after reading. Note articles of interest.

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Cincinnati Enquirer

WM. REDFIELD
Head Machinist
Cincinnati Enquirer

Cincinnati, February 3, 1931.

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Your service men have been here at intervals of about six months. I do not think we ever sent for them. They called to check up on matrices and give us service, and it was up to us if we thought matrices needed reprocessing or not.

There has been much satisfaction expressed by the operators regarding the readability of the matrix line.

The Enquirer, like other papers established years ago, has a large portion of its force past middle age. In justice to these older men I must say they are not the first to complain if matrices need reprocessing.

From the operators I hear only expressions of satisfaction that they can do their work with less effort and be sure of clean proofs.

The continuance of the system in this office can be taken as proof that it is satisfactory to the management.

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Head Machinist,
Cincinnati Enquirer.

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33 West 42nd Street, New York

PRINTING
EQUIPMENT
ENGINEER
April, 1931

Chromium as a Printing Surface

By GEORGE B. DRACH* *and* LOUIS WEISBERG†

THE purpose of this paper is to describe the use of chromium plating on printing surfaces, and more particularly, to report the experience of the Jersey City Printing Co. along that line. The method of depositing chromium followed in the Jersey City plant will not be described here.

A few words on the subject, however, will not be out of place. The general features of the process of chromium plating have been set forth in many places, but it is worth pointing out that experience has revealed the possibility of great differences in the results obtained, according to the method used. In order to obtain consistent results, the operations have been standardized along the lines that were found to give the best results. Certain details of the process are considerably different from the usual method of chromium plating. The operation of the chromium plating plant is under strict chemical control.

The chromium-plating department of the Jersey City Printing Co., started about a year ago, was designed and installed by Weisberg & Greenwald, consulting engineers, New York. The idea of using chromium there originated largely through reports of the striking success achieved at the United States Bureau of Engraving and Printing. As is now quite well known, the Bureau of Engraving and Printing, in cooperation with the Bureau of Standards, did excellent pioneer work in developing the use of chromium for printing purposes. This was one of the early commercial uses of chromium plating, and it is rather strange that the printing industry has been so slow to appreciate the value of chromium.

The Jersey City Printing Co., where long runs are quite common, was naturally impressed by the favorable reports of the Bureau of Engraving and Printing, and decided to make some investigations on its own account. The purpose for which chromium was first adopted there, however, was about as different as could be from the use of chromium at the Government Printing Office.

The Jersey City Printing Co. prints a number of telephone directories, including some of the largest in the country. While some of these are printed from electrotypes and others from stereotypes, in all cases the names and addresses are set up by linotype machines. A separate slug is made for each name in the book. Plates for printing the main issues of the directories are made from the slugs. In other words, each directory is kept standing in linotype, slugs being removed, replaced, or added as necessary.

As a result, the slugs are subject to considerable handling, in the course of which the face may be scratched, dented, or otherwise damaged. Twice a year they are locked into forms and impressions taken for the plates from which the telephone books are printed. Moreover, as has been stated before, considerable printing is done directly from the slugs. When it is realized that 10 years is the desirable life of a slug in these directories, it is easy to understand that linotype metal by itself, unprotected, is not equal to the task.

In view of the reputation of chromium for hardness, chromium plating came up for consideration. Linotype metal being very soft, compared to the surfaces on which chromium was being applied at the Bureau of Engraving and Printing, it was realized that conditions were not comparable and that reliable conclusions regarding the behavior of chromium on this soft metal could not be drawn from any of the work done at the Bureau of Engraving and Printing.

A further difficulty might arise, it was realized, through contamination of the linotype metal, when slugs were remelted. The whole idea would be impractical if this should be the case, and careful experiments were made to settle this point. In fact, before installation of the plant was started, preliminary tests were made by the consulting engineers for the company, on the basis of which it was felt that the whole thing looked promising enough to warrant the installation of a plant large enough to plate the daily production of slugs required by the company.

The plant was designed primarily for plating the slugs which have been described, although of course electrotypes and stereotypes can be plated just as well. So far as the operation of the chromium-plating

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†Consulting chemical engineer, Weisberg & Greenwald, New York City.
Abstract of paper delivered before the second conference of Technical Experts, March 15-16, Washington, D. C.

plant is concerned, there has been very little trouble. It took a while to work out the best methods of handling slugs and to accustom the personnel to their new duties. Since then, however, the chromium plant has experienced less trouble than the nickel plant for plating stereotypes, which has been in operation for a number of years.

Shortly after the plant began operation, a systematic investigation was commenced to determine the probable life of chromium-plated slugs in use, as well as the effect of varying different factors in the plating procedure. The most important factor is, of course, the thickness of plate, or what amounts to the same thing, the time of plating. Attempts were made to work out methods of testing the hardness and wear resistance of chromium-plated slugs, but finally it became necessary to fall back on a rather long drawn-out attempt to print from the slugs until they broke down. Forms were made up in which each column of slugs had been plated according to a different procedure. For comparison, a column of ordinary slugs with no plating whatever was employed. In addition, several columns of nickel-plated slugs were included, so as to give an idea of the value of nickel versus chromium plating. In this way, the slugs were all printed under conditions which were as nearly identical as it was possible to make them. The press used was of the flat-bed type. Extra pressure was used to accelerate the wear on the slugs.

As often happens when systematic testing is undertaken, it was surprising to find that the plain linotype slugs stood up longer than was expected. After running 114,600 impressions, however, these slugs showed marked signs of wear. The chromium and nickel plated slugs were still in good shape. Unfortunately, all the presses were too busy to make it possible to continue the run, as it was evident that a considerably longer run would be required to break down the chromium.

While, as has been stated before, the main purpose of this plant was the plating of linotype slugs, it has also been used to a limited extent for chromium plating both electrotypes and stereotypes. The results are of interest, especially as they involve longer runs than any of the slugs have been subjected to yet. The results on stereotypes should be comparable with what could be expected from slugs, since the metal in both is similar. For example, six electrotypes, each one representing a page in the Manhattan telephone directory, were chromium plated and printed from a rotary press, alongside the usual nickel-faced electrotypes from which the rest of the book was printed. The total length of this run was over 1,800,000 impressions. None of the chromium-plated electrotypes required any attention for repairs or refinishing, and at the end of the run all appeared to be in as good shape as when they started. The plates showed no signs of wear and were printing as clean and sharp at the end of the run as at the beginning. The regular nickel-faced electrotypes, on the contrary, required considerable repair time during the run, averaging, it is estimated, from one-fourth to one-half hour of finishers' time per plate. The main cost of such time, it need hardly be explained, is not in the labor spent in repairing the plate, but in the shutting down of the press while the plate is being worked on. Not only is there a loss in production, but the press crew must be paid for idle time.

When it is considered that we can plate an electrotype with chromium for much less than the difference in cost between a copper electrotype and a nickel one, there seems to be no justification, in view of these

Continued on page 7

"Daylighting" The Specialists' Knowledge

AN EDITORIAL

THE greater the frequency with which we are accustomed to perform any certain piece of work, the more efficient we become at doing it. We make specialists of ourselves as it were. All the little "musts" and "must-nots" are subconsciously avoided as we go along doing repetitive work, until the skillful performance of the task is often taken for granted—it's all in the day's work.

In some instances, this is the viewpoint of the machinist working with a large battery of composing machines, and he is apt to overlook the fact that publication (so far as is possible) of the knowledge which is "common run" for him will be of great benefit to the man who rarely encounters difficult maintenance work, because of the size of the machine installation in the plant in which he labors. Besides, that is not his major objective, anyway.

Those who do not have occasion to do certain kinds of maintenance work except at rare intervals, contemplate the job in hand with trepidation. A great many machinist-operators are maintenance men by force of circumstances, not by choice—because their workday objective is to produce type—and lots of it.

It is perfectly all right for an inexperienced machinist-operator to attempt a major repair, but in a great many instances an infrequent repair is undertaken without first obtaining sufficient data.

It is also true that the services of a nearby skilled mechanic are always available—for a consideration.

Most small plants are situated reasonably near to a machine shop which in most cases is capable of rendering sufficiently skilled mechanical services by heeding the suggestions of the operator who may be supervising the work.

For the benefit of the proprietor or manager of the small plant, it can be said that it is not an unreasonable move to call in skilled help on certain major composing machine repairs which might require machine tools to complete the work. Money will be saved—both in labor-time and down-time of the machine.

results, for using any kind of electrotypes but chromium-plated ones on runs of any length.

In regard to chromium plating on stereotypes, the recent issue of the Philadelphia telephone directory gave the best data we have to date. Seventy-two stereotypes, each corresponding to a page of the directory, were chromium plated and printed on rotary presses. The remainder of the book was printed from electrotypes. The edition consisted of 550,000 copies. At the end of this run, all of the 72 stereotypes were in good shape, none of them having required any finisher's time for repairing. It is true that the Jersey City Printing Co. has produced nickel-plated stereotypes which are good for as many as 1,500,000 impressions, but to get such results with nickel requires a much greater thickness of plate than with chromium. In consequence, there is less filling in of the type with chromium. It takes one and one-half hours in the nickel tank to put on enough nickel to give this many impressions. One-half hour in the chromium tank is the longest time we have used.

The most striking thing about this run was the fact that the section of the book printed from chromium stereotypes was a better and cleaner job of printing than the rest of the book, which was printed from electrotypes.

It seems to be true in general that chromium surfaces give unusually sharp and clean impressions. The reasons are probably several. In the first place, chromium does not wet readily and therefore does not take up an excess of ink. The deposit of chromium is thin—only a matter, usually, of a few ten-thousandths of an inch—and there is no filling in of the type. The printing surface is hardened and its resistance to wear greatly improved, resulting, therefore, in clean-cut sharp impressions throughout runs of the greatest length.

In conclusion, we recognize that this is only a preliminary report, covering a single year's experience on linotypes, and only a limited use of stereotypes and electrotypes. The point at which chromium begins to break down is not yet in sight. Based on the results to date, chromium is being used on linotype slugs for the various directories and for all runs of any length. Since the results on electrotypes and stereotypes have proved all that could be hoped for, it is expected that the use of chromium in these directions will be extended. Of particular interest is the question of the extent to which chromium-plated stereotypes may advantageously replace electrotypes. It seems that the chief limitation here is in the process of stereotype making, rather than in chromium plating. The development of methods for making better stereotypes, in conjunction with the use of chromium plating, offers an attractive means of reducing the cost of printing plates.

Finally, we wish to emphasize that it has been our purpose throughout to avoid anything that might be construed as overstating the advantages of chromium.

Pre-makeready Methods And Machines

By J. W. Rockefeller, Jr.*

The most important problem confronting the printer today in the elimination of waste in the pressroom is that of reducing the standing time of his presses. Economical printing demands that the wheels of the industry be kept moving not only figuratively but literally, for the product of the press is printing and the unit of production measurement must be based in the ultimate analysis upon the impressions of the press. The manufacturers of printing presses have for the most part performed their task well. Today's press is made to run at a speed as great as the owner dares or needs to operate it. It is made with a mechanical precision unsurpassed in any other field of industry. The greatest care is exercised in the selection of the materials going into its construction. Scientific methods of testing and gaging are employed to insure accuracy within tens of thousandths of an inch; and when this triumph of engineering ingenuity and mechanical skill is placed upon the floor of the pressroom it will, from the very start of its useful career, be subjected to abuses which no one but a printer would tolerate. Furthermore, it will be permitted to stand idle for from 50 to 80 per cent of its natural life, while its fountain is used as an ink-mixing chamber and the contour of its cylinder is being distorted to accommodate the inaccuracies of the materials which are locked up on its bed.

"Get the job on the press," that familiar war cry of waste, has unfortunately been adopted as the slogan for many pressrooms. Getting the job on the press too often means locking up on the press bed badly blocked electros varying from five to twenty thousandths of an inch above or below type high and machine composition or foundry type showing a similar variation and containing a number of broken letters for good measure.

Then comes make-ready, that laborious and tragic process of cutting and trying which has made the mother of learning the stepchild of the machine age. I have heard the blame for this condition laid at the door of the pressman. Speaking for pressmen of my acquaintance, I can say that such an allegation is nothing short of gross libel. In shops where the pressman has been taught that he is not paid to wield the

*Engineer, Edgar C. Ruwe Co., New York, N. Y.
Paper presented at the second conference of Technical Experts, March 15-16, Washington, D. C.

white-wash brush for the composing room, the photo-engraver, and the electrotyper, he operates with more efficiency and intelligence than his counterpart in any other calling.

There is only one man who can eliminate the waste now so widespread in the printing industry, and that is the printer himself. The process of waste elimination is simplicity itself, as it consists merely of changing the slogan of the pressroom to read "Keep the job off the press—until it is ready to print." Make the compositor, the engraver, and the electrotyper do their own work and do it correctly.

There are two types of electrotypes, trade composition houses and photo-engravers, which supply the printer. Some time ago I questioned an electrotyper of each type regarding the possibility of obtaining 11-point electrotypes shaved correctly to within one-thousandth of an inch. The reply of the first went something like this:

> We have for years been serving some of the most successful printers in the city of New York. We make good electros, but of course they may require a certain amount of underlay. The sufficient demand for our regular product is such that we do not feel justified in making a special effort to meet your particular and somewhat unusual specifications.

The reply of the second was in substance as follows:

> We have in our shop an automatic roughing and finishing shaver which controls the thickness of the product within one-quarter of a thousandth of an inch. We can not only meet your requirements, but are daily doing it as a regular thing, for we find it as easy to make our product the right height as the wrong height.

The cases of the engraver and trade composition house are parallel. Already there is a demand for accurately made engravings and correctly cast linotype and monotype. But this demand is not as widespread as desirable. There are far too many printers quite willing to accept linotype slugs upon the argument of the producer that they can be made to print, and as long as this general willingness exists the product of the composing room will be poor in quality. Machinery will be permitted to deteriorate and to operate in bad condition, the careful operator will receive no more credit than the slipshod one, and the man at the press will cover up the poor workmanship of previous operations.

The printer alone can correct this condition and can do it only by proper inspection of material. Material can be properly inspected only by the setting of rigid standards and the introduction of testing or proving apparatus which will leave no room for argument in deciding whether or not such standards are met.

The apparatus for making such tests has been designed and put upon the market by several manufacturers. My own acquaintance with the several makes has convinced me that for the most part all possess decided merit; any one will save money for the printer, if properly employed.

Ink can be mixed by formula before the fountain of the press is filled, and when the fountain is filled it can be known in advance that the color of the finished job as produced by that mixture will be the desired one. Line-up can be accomplished with the aid of means more exact than a carpenter's jackknife rule, and that eternal shuttle between presses and stone can be eliminated. Forms can be made perfect before they are ever placed upon the press bed. The press itself can do the work for which it was designed and the pressman can hold his head up with the satisfaction that comes only when alibis have given way to performance records.

If such apparatus is available, what prevents any printer from employing it and reducing the standing time of his presses in some cases as much as 80 per cent? A purely imaginary obstacle known as the hidebound pressman. Today such a figure is almost as extinct as the pterodactyl.

The pressman of today is not an animated fossil excavated from the moraine of the last glacier. He is a skilled worker of more than ordinary intelligence and surprisingly well informed on modern methods in other industries. He will agree with you most heartily if you suggest that cutting patches out of paper is a fit occupation only for a resident of a State institution. He will further indorse your views if you state that controlling a swiftly moving machine is a man's work.

If he can double the average daily impressions in your plant, he will be happier over the accomplishment than anyone else in the shop. For years he has done everyone else's work. Why not give him a chance to do his own?

Pressroom Troubles

By WM. J. SCHNEIDER

A great percentage of pressroom troubles may be avoided by giving attention to the following fundamentals:

Pack the cylinder properly.

Have good rollers and see that they are correctly set.

Use the right kind of ink for the job.

Lock forms properly; have cuts type-high; have proper gripper "bite"; see that the brush and bands are properly set.

Have the feed board the proper height, and see that guides raise at the right time.

Origin of Alphabet

The Roman alphabet, from which our present-day alphabet was directly derived, was developed from the Greek alphabet which was introduced into Italy not later than the eighth century B. C. The Greeks, in turn, developed their own alphabet from that of the Phoenicians. The Greek alphabet appears to have been developed as early as the ninth century B. C. The Phoenician, or Semitic, alphabet dates back at least to the tenth century B. C.

Future Conferences Of Key Men

By W. D. WILL

THE success of the second conference of Technical Experts in the Printing Industry, held recently in Washington, rather suggests that conferences be permanently annual affairs. The suggestion has been made that the third conference be held in New York in 1932, and the fourth in Chicago in 1933 during the World's Fair and Graphic Arts Exposition.

All of the organizations in the graphic arts have participated in the conferences, and it is from these in the future that all of the speakers should be drawn. The outstanding features in each branch of the industry, Secretary Hulse thinks, should be made the subjects of these addresses, with exhibits only that directly apply to the subject of the paper and that can be shown on the platform.

These meetings are very well in their way, but if the valuable information contained in the addresses can be spread farther to the whole industry, then the benefit is greatly increased.

The then directing chairman, Edward Pierce Hulse said at the Washington conference:

> It is generally conceded that no other single industry has brought out the inventive ability of man as has the printing industry. And yet, many of its own problems are as yet unsolved. Engineering progress is rapid, and the details of it are numerous. Books are inadequate to keep the engineer abreast of the most recent developments. They are valuable in recording established practices and they can best provide the sources in which to find fundamental principles. Today's practice needs more rapid vehicles for its dissemination, such as are found in the technical meeting and the technical journal and in meetings such as this, with the further publication and distribution of the information in these valuable addresses through the medium of the trade publications. Technical meetings and technical addresses are valuable, but if this information can be got over the fence of the association or society meeting and spread to the industry, its value is increased a hundredfold.

It is also our opinion that the real value of these or any other meetings of technical men lies in the proper dissemination of the information reported. It is impossible for everyone to attend who would like to do so, and PRINTING EQUIPMENT ENGINEER stands ready and willing through its pages to broadcast the spoken results of research and experiment.

The paper written by Willis H. Carrier, president of the American Society of Heating and Ventilating Engineers, and read by D. C. Lindsay, gave a thought along this line.

In speaking of the appeals that had been made to the printer,

> he should approach the subject (air conditioning) with an intelligent eye on its possible contribution to his production. . . . Finally, we direct our appeal to the printing-trade journals, to their editorial and trade-literature columns, and to their advertising pages. In all of these you have a moral if not a legal obligation to your readers of the printing trade.

The resignation of Edward Pierce Hulse, chairman of the Printing Industries Division of the A. S. M. E. for four very successful years was tendered at the close of the meeting. The executive committee of the division will name his successor.

Benefits Of Air Conditioning

By B. OFFEN*

THE problem concerning the effects of humidity on paper is one of extreme importance. All plants, at one time or another, experience serious trouble with paper. The causes may be traced back to several things, but it is quite safe to say that most of the troubles are due to moisture changes in the air. This may appear to be a broad statement, but if one appreciates how quickly paper is affected by the humidity changes in the air, it is fairly certain that they will soon find the real reason for most of their paper troubles.

The purpose of an air-conditioning system is to maintain a constant temperature and humidity within a confined area. This includes the pressroom and any other room that may require temperature and humidity control.

This is accomplished by an air-circulating system which regulates the flow of conditioned air to the desired room. Further, this conditioned air has a predetermined temperature and humidity and when allowed to circulate through the conditioned room will give to that room the desired temperature and humidity.

AIR-CIRCULATING CYCLE

Starting with the room that is conditioned, air is supplied at a predetermined temperature and humidity to maintain the desired air conditions. This air supply is diffused throughout the entire area giving the same temperature and humidity to all parts. This air, after circulating through the room, is drawn out at certain points and taken back to the air condition-

*President, B. Offen & Co., Chicago, Ill.
Paper delivered at the Conference of Technical Experts, Washington, D. C., March 15th-16th.

ing apparatus. Here, the room air is mixed with fresh air in any desired proportions and is then passed into the air conditioner where the change to the air actually takes place.

In this conditioner the air is washed and cooled by a series of water sprays. The temperature of the water spray regulates the humidity given up to the passing

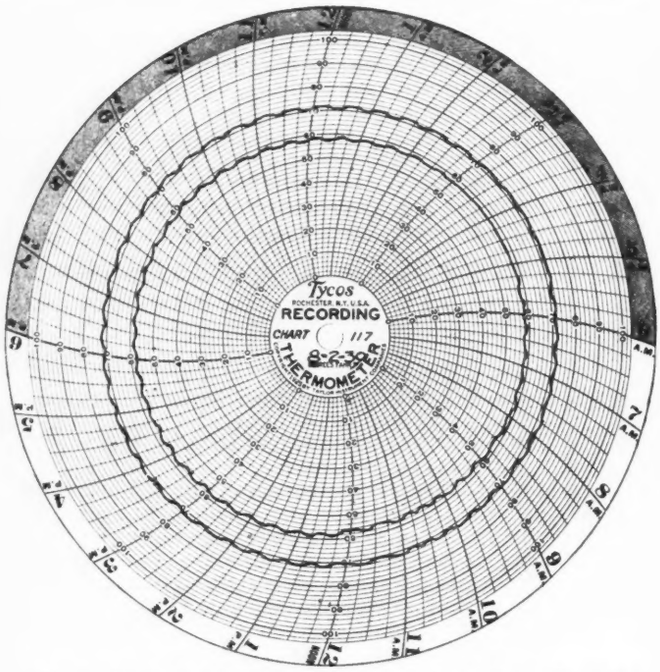


Chart taken from Recording Instrument in Air Conditioned and Dehumidified Room, August 2, 1930, Chicago, Illinois. Weather report for that day at 4 p. m. was 96 degrees F. outside. Outside line, dry bulb temperature; inside line, wet bulb temperature. Relative humidity constant, varying not over two per cent.

air. The warmer the spray water the higher the humidity. The cooler the spray water the lower the humidity. There is automatic control which regulates the temperature of the water spray and, therefore, controls the humidity of the air supply for the room.

Where it is required to remove moisture from the air, the spray water is cooled to a low temperature and then sprayed in the air conditioner. Therefore, when it comes in contact with the passing air the spray water has the same effect as that caused by a cold wind. The spray chills the air to a low temperature, cools the moisture in the air, and condenses it out. This is similar to a condition when humid air is passed over a cold ground. The moisture is cooled and then condenses itself, forming dew on the surface. Even though water is used the moisture from the air is condensed because of the low temperature of the water. Further, the air conditioner is equipped with humidity control which regulates the temperature of the spray water and in this manner the amount of moisture to be condensed out from the air is controlled.

This air is then passed through a series of baffles which removes all the spray water with the result that the air leaving the conditioner is perfectly clear and free from any mist or fog. In fact, to the eye there is no indication of moisture in the air. This conditioned air is then drawn into the fan which blows it through a pipe or duct leading into the conditioned room. Outlets in this pipe permit air to enter the room at certain selected points which give a uniform circulation as well as a uniform temperature and humidity to all parts.

Further, in circulating through the room the air gives up moisture or will absorb moisture depending on the outside conditions. The changes in the humidity supply are required to correct for leakage in the building and from the outside as well as certain conditions within the room itself. Changes in the temperature and humidity of the supply air are very gradual, with the result that the temperature and humidity in the room is practically held at a constant point.

Conditioned air from the room, after circulation, is drawn back again to the apparatus, mixed with fresh air and then to the conditioner where it is treated as previously described.

FRESH AIR

Taking a minimum amount of fresh air builds a slight air pressure in the room which reduces the leakage of the outside air to the conditioned room. Secondly, fresh air is necessary for ventilation purposes to correct odors given off by the materials in the room.

In an air-conditioning system it is important to keep all windows and doors closed to prevent unconditioned air from entering the room. Fresh air should be brought in only after it has been through the conditioner and given proper temperature and humidity.

HEATING

Heating is an important factor in the air-conditioning system. The heating coil is placed in the supply pipe to the conditioned room. This coil may be for steam, hot water, or electricity. The temperature regulator in the conditioned room automatically controls the amount of heat given off by this coil as the air passes over. Thus, the temperature of the press room is maintained at the desired point. Further, if desired, the heating coil installed can do all the winter heating; therefore, eliminating radiation along the walls. Heating with air circulation gives a more uniform temperature throughout.

SUMMER COOLING

Where it is desired to have inside summer temperatures at approximately 80 degrees it is oftentimes necessary to install mechanical cooling. Where well water for cooling purposes is not available an automatic refrigeration machine which cools water may be used for spraying purposes, in the air conditioner. With this machine it is possible to maintain 80 degrees F. inside regardless of outside temperatures. Further, it is used for controlling and reducing the humidity during damp days.

The complete installation is arranged in a simple manner so that the average man around a printing plant will be able to operate it and keep it in good working condition. With this type of apparatus a plant is able to maintain a constant temperature and constant humidity throughout the entire year.

Major Geo. L. Berry—Labor Leader

By WALTER H. OGDEN*

Major George L. Berry, President, International Printing Pressmen and Assistants' Union, Soldier and Successful Farmer.

MAJOR GEORGE L. BERRY entered into the printing and newspaper field at the age of nine. He participated in the publication of the first edition of the Jackson, Miss., *Evening News,* by serving as "printer's devil." At the age of sixteen he moved to St. Louis and went into the commercial field and there became a member of the International Printing Pressmen and Assistants' Union of North America.

From St. Louis he journeyed to Lincoln, Neb., and worked on a newspaper published by former-Secretary of Agriculture J. Sterling Morton. From Lincoln he went to Denver where he worked on the *Denver Post* and in the commercial printing field with the Smith-Brooks Company. He then proceeded to San Francisco where he engaged himself in the magazine publication branch of the industry. In 1907 he was elected president of the International Printing Pressmen and Assistants' Union of North America at a convention held in New York City. He has been continued in the office of president ever since.

Major Berry is a veteran of the Spanish-American and World Wars, having received the majority grade of Major in the Engineering Corps of the American Expeditionary Forces. At the end of the World War he was Liaison Officer for the American Commission to negotiate peace in Paris. He received an honorable discharge from the Army in May, 1919.

Prior to his entering military service, Major Berry was a member of former-President Wilson's first Commission to Europe. The purpose of this Commission was to coordinate industrial activities of the Allied Nations with the United States, looking toward the establishment of greater efficiency and cooperation in the conduct of the war.

Major Berry was a candidate for the Governorship of Tennessee in 1914 and was defeated by 82 votes. He was likewise the leading candidate for the Democratic nomination for the Vice-Presidency of the United States at the Democratic National Convention in New York City in 1924, and after leading the ticket was finally defeated by Governor Charles Bryan of Nebraska by three votes.

Major Berry is the father and founder of the little town known as Pressmen's Home, Tenn., which is owned, operated and controlled by the International Printing Pressmen and Assistants' Union of North America, at which place are maintained the largest Technical Trade School in printing in the world, a tuberculosis sanatorium with capacity for 250 patients, a home for aged and incapacitated members with a capacity for 350 and many subsidiary and auxiliary institutions maintained as a part of this humanitarian and educational activity.

Major Berry and his associate members of the Board of Directors of the International Printing Pressmen and Assistants' Union of North America have established an enviable position as it relates to the friendly and cooperative spirit prevailing between the organization he represents and the employing printers and newspaper publishers of America. This is best testified to by the existence of an International Arbitration Contract between the American Newspaper Publishers' Association and the International Printing Pressmen and Assistants' Union of North America; likewise a National Contract with the Scripps-Howard Newspapers and the International Printing Pressmen and Assistants' Union.

The contracts as well as the general policy pursued by the organization under the leadership of President Berry has eliminated almost entirely industrial discords in the newspaper field as it affects the pressroom departments of both the United States and Canada. It can be very well said here that President Berry is the outstanding advocate of conciliation and arbitration in industrial disputes among the labor representatives of America.

The International Printing Pressmen and Assistants' Union of North America, under the leadership of President Berry, has risen from a membership of approximately 16,000 to approximately 50,000; its wealth has increased from some $24,000.00 to more than $4,000,000.00. He has brought into existence not only the humanitarian and educational structures referred to, but a pension system and a mortuary benefit system and a series of branch technical trade schools located in New York City, Hamilton (Canada), Cleveland, Chicago and Seattle. Incidentally, he is the founder of that world-wide publication known as the *Book of Art Printing,* issued biennially and accepted by printers everywhere as a guide to fine printing.

Major Berry's personal life is confined very largely to farming. He is one of the large cattle and hog producers of the South and has made it pay.

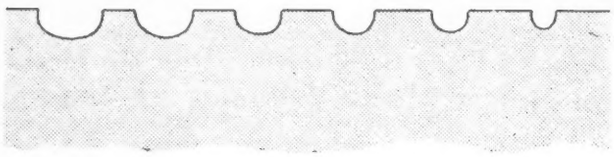
*Superintendent, Press Room, Cleveland, Ohio, *Press.*

More About Your Printing Plates

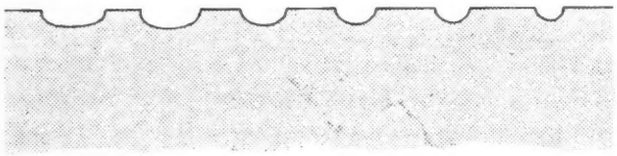
By Fred F. Uhl

One of the most frequent sources of trouble in plates that come to an office is lack of depth or shallowness in the highlight portion of the picture.

Electrotypes, patent plates or mats are sent in that on careful examination are found to be only 0.003 inch to 0.004 inch in depth. A proof should be made from such a plate and a reproduction made from that unless



Cross-section of a 55-line halftone, etched to approximately 0.004 inch.

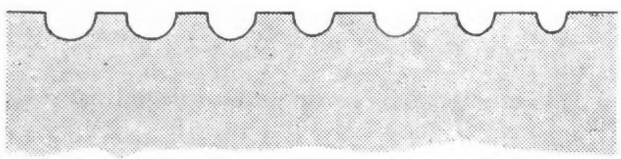


Cross-section of stereotype made from a cut etched as above which shows the loss in depth. On account of shallowness, the ink touches the bottom between the dots, and soft paper will bow down sufficiently to pick up some of this ink, thereby producing a smeary impression.

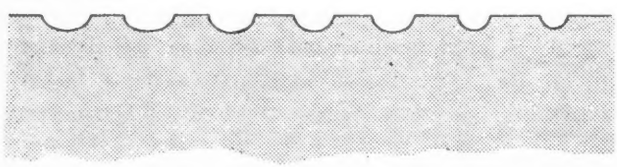
there is time enough to send the faulty plate back to the maker and have him remedy the trouble.

The fact that the electro, mat or stereo received is shallow does not necessarily mean the fault is there; it merely shows up there, but is in the original plate from which the above were made.

Some plate makers do not pay enough attention to depth of their cuts according to the screen ruling used



Cross-section of a 65-line screen, etched to same depth (0.004 inch) as the 55-line. Note that the dots are closer together.



Cross-section of stereotype made from a cut as the one above. Note that the depth is the same as in the 55-line, but on account of the dots being closer together the paper is not so liable to pick up the ink from the bottom of the cut.

and seem to think a cut of 50 or 55 lines will print better than one of 65 lines of the same depth.

For example, we will say 0.045 inch depth on the 65 line job will allow for the loss in stereotyping and still maintain a safe printing depth, but on the 50 or 55 line cut this would not be enough on account of the greater distance between the lines, which would permit the paper to bow down and pick up some of the ink that is on bottom of the etching. A 55-line plate should be at least 0.006 inch deep. You can get by with a little less on the finer screen, but the chances are somewhat against you.

The reference above to the 0.045 inch depth does not mean that it is the proper or even sufficient depth for a 65-line halftone, but with good stereotyping, press-work and paper the job no doubt will show up fairly well.

"Engraving" Without Metallic Plates

The illustration herewith is printed from a new kind of plate made by Howard D. Salins of Chicago. If the plate and process for making it prove all that is claimed for it, any printer can make his own cuts, providing he installs a camera and a printing frame. Skill, it is alleged, is not as essential as it is in photo-engraving.

On careful examination of the cut we find it has, what is apparently a gelatin film on a celluloid base, which if true, means that it is an adaptation of the old swelled gelatin process that was discarded about 40 years ago when zinc photo-engraving superceded it.

We are greatly interested and will watch further developments in this process, and trust that the inventor will soon be in a position to send us a plate so that a practical test may be made.

"Boustrophedon"

The early Semitic writings were always from right to left. Greek and even two Roman inscriptions have been found which were so written. At about the sixth century B. C., the Greeks developed a method of writing in which the lines run alternately from right to left and from left to right. This method of writing is known as *boustrophedon.*

Pre-makeready Methods And Machines

By L. W. CLAYBOURN*

L. W. Claybourn, President of Claybourn Manufacturing Co., Milwaukee, Wis., and Leading Exponent of Precision Methods for the Printing Industry

VOLUMES have been written on makeready as it is practiced today, but the introduction of pre-makeready is a relatively new subject, practiced by few and successfully by fewer, solely because mechanical precision has been overlooked.

The word, "makeready," is a very confusing term as used in the printing industry, and we are simply fooling ourselves if we interpret its meaning as a method of cutting and patching underlays or overlays for printing plates to establish their true printing level and expect to get results when this is accomplished. The most uniform plate ever made will not print successfully if placed on a warped press bed or a faulty printing cylinder, because successful printing depends upon the accuracy of these plate-supporting elements. I am going to make the positive declaration without fear of successful contradiction that the necessity of patching and cutting out overlays and underlays as practiced today is caused by mechanical error somewhere, which may be other than the plate itself.

If plates are being used that require cutting and patching, it is simply evidence that they are faulty, as plates can be corrected and tested for accuracy before use in the productive pressroom. I wish to emphasize, however, that if these plates are corrected by the usual underlaying system, they will not function as well as plates that are corrected and shaved to precision. Shimming or underlaying low spots under plates lifts them off their feet, causing much trouble in production, and the results cannot be compared with plates that have previously been perfected. Other causes of trouble often blamed on plates may be found in the printing presses. Bases on which plates are mounted may be warped; printing cylinders or beds of presses may be worn, warped, or both. The journals of the presses may be worn so much that uniform impression is impossible. Weakly constructed machinery that will not stand the strain of impression or maintain the precision and accuracy that is originally built into it may be the cause of excessive makeready.

If all of these elements, which are mechanical, were of adequate strength and precision and if plates were made to fit and become an integral part of the bed or cylinder with adequate precision, the necessity for so-called makeready would be eliminated. We could then faithfully print the subject matter that is etched into printing plates or plates made from locked-up forms. If we would ascertain that the forms or originals which are to be duplicated were accurate in every detail, duplicate plates made from them would likewise be correct.

UN-UNIFORM PAPER SURFACE

I do not wish this statement regarding the elimination of makeready to be misinterpreted as it has been many times in the past, as we still have a problem which is often confused with makeready. We are still confronted with the un-uniform surfaces of paper on which we print, and it is very obvious that greater pressure is needed to iron out the solid portions of printing on a rough un-uniform stock than is required on a uniformly calendered and well-ironed-out sheet. Ironing out stock by impression should always be done from the cushion (packing) side of the press, when precision methods are employed. If it is attempted from the bottom of the plate, we are robbing the machinery and precision plates of their perfected condition. Therefore, I claim that the makeready necessary in printing by precision methods depends entirely upon the stock being printed, which should first be selected. Then some intelligent engraver should be consulted to choose a screen to meet that stock condition and etch the plates accordingly. The job should be proofed on the stock to be printed and the same inks employed in proofing that are to be used in printing the job, so that an intelligent knowledge of the job may be had before production starts. *Do not make your productive center a laboratory where tests are made.* Make your tests first, see that all materials used are correct and suitable for the job, and then go ahead.

BETTER PRINTING ON ROTARY PRESSES

The ever-increasing demand for color printing and faster productive methods has stimulated the use of rotary presses to an astonishing degree within the past few years. Great interest has been aroused in ways and means of accomplishing better printing by this method, which is entirely dependent upon mechanical and precision conditions. It has been proved that rotary presses can be started as quickly as the flat-bed type of machines. The bug-a-boo of rotary printing in the past has largely been inadequate plates that would not

*President, Claybourn Process Corporation, Milwaukee, Wisconsin.

fit the cylinder and register after being curved. These conditions have been met and overcome, and development and invention has improved rotary presses mechanically to a large degree, providing machines of greater accessibility, faster speeds, and mechanical devices for eliminating loss of time in setting rollers and making various adjustments with certainty and speed. However, precedent and time-old customs and practices are again injecting themselves into this new field of greater production, and those with little experience in rotary printing are seeking relief by the use of methods that have been discarded and proved worthless by some of the best and oldest known pioneers of rotary printing.

ROTARY PRESSES AND PRECISION

Any method that distorts the face of a plate, producing a condition that changes its pitch or printing line, defeats precision methods and causes difficulty in register and true pitch travel of the printing press. A rotary printing press should travel absolutely on its bearers, not on plates, and through the packing sufficient pressure should be produced to transfer the printing ink pigments from plate to paper on a true pitch travel line to assure register and prevent the plates from wearing. The solid portions of the plate, when properly made, having had greater pressures applied to them in making than they will receive under printing pressure, and due to the density of the metal supporting the solids, will not yield to printing pressures. Therefore, they will print solids uniformly and also act as bearers to the high-lights or more delicate portions of the plate. It is very necessary, however, for the plate to perfectly fit the cylinder and receive its full support under printing pressure. Underlays would prevent this plate from fitting the cylinder snugly, causing it to wear, slur and crystallize.

METHOD OF MAKING PLATES

There is very little new mechanically, and mechanical invention now resolves itself into application of mechanics introduced into other fields of endeavor. The introduction of a new method of making a perfect cast bearing recently came to my attention. This method essentially provided means of casting metals to fit a journal perfectly, without the necessity of any scraping or mechanical operation. All mechanical operations were applied to machine the outer surfaces of this casting to accuracies approximating those produced by casting the metal to a perfect fit on the journal. This is exactly what we are trying to accomplish in making printing plates. We should make an adequate mold and produce a perfect reproduction of the face of that mold by electrolysis or casting methods. The backing-up metal must then be reduced to a perfect thickness to equal that created in the face of the plate. Otherwise shimming and patching would be required to seek that printing level.

If this be a fact, it is obvious that the old forming blocks, hot and cold, that have been employed in the past are unfit for use and if the plate is not reduced to an exact thickness, these old methods will not iron out the inaccuracies because they would smash the high portions of the plate before reaching the low portions, and as a result the low portions of the plate cannot be treated without ruining it. Therefore they are inadequate and unfit for use, as a perfect face area of the plate must be produced and maintained by machine operation, the thickness of the plate must be obtained mechanically, to the exact thickness conforming with the perfect face areas.

Continued next month

William Feather's Reflections on Business

William Feather, President of the William Feather Printing Co., also contributes to Nation's Business, Philadelphia Public Ledger, New York Evening Post and Chicago Daily News.

ABOUT fifteen years ago, a few days after I had ventured into business for myself, I met a friend on the street and he asked me what I was doing.

"I'm in for myself," I said. He was a salesman in an allied line.

"God help you!" he commented, implying that I would need all the help I could get. Business, he said, was rotten.

Three years later, when my affairs were on a steadier basis, I again met this man. He asked me how things were going, and I inquired what he was doing.

"I expected to start in for myself this year, but conditions aren't just right," he answered.

Four years later I saw him again. My business was still small, but it had trebled in the intervening seven years.

We checked up on each other, and once more he confessed that he cherished the hope that he could have his own company, but he feared that prospects were not right. He thought it wise to delay.

This man now has a first-class position with a big corporation and is probably doing well, perhaps better than he might have done if he had gone it alone.

But he really wanted to have his own company, and the reason why he hasn't is because he waited for conditions to get "just right."

Chicago "News" Handling Methods

By MATTHEW W. POTTS*

THE mechanical-handling installation at the *Chicago Daily News* uses continuous conveyors of unique design and application, and embodies a close cooperation between the design of the buildings and a definite layout of handling. Fig. 1 gives a view of the complete conveyor installation for handling rolls of paper from railroad cars and barges to the roll storage room, then the reclaiming of these rolls and delivering to the reel room. It also shows a conveyor for handling stereotype plates to the press room and conveyors for handling bundles from the presses to the truck distributing platform, and a small installation for handling forms from the make-up room to the stereotype room.

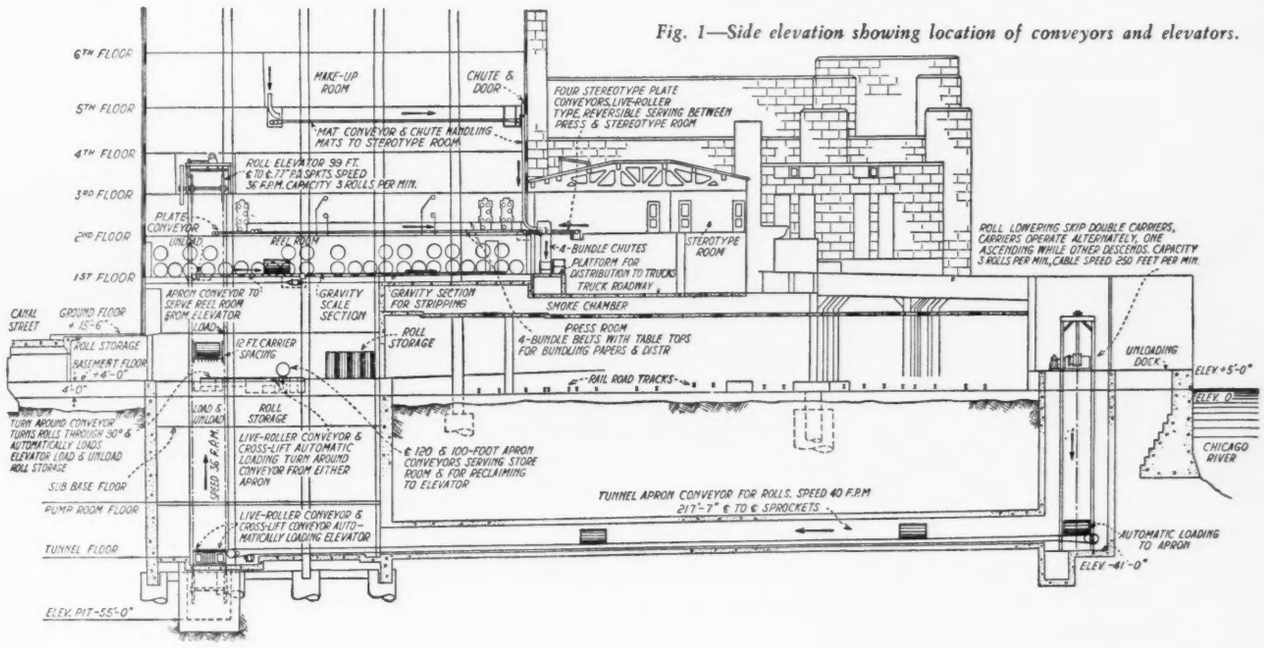

6TH FLOOR
5TH FLOOR
4TH FLOOR
3RD FLOOR
2ND FLOOR
1ST FLOOR
MAKE-UP ROOM
CHUTE & DOOR
FOUR STEREOTYPE PLATE CONVEYORS, LIVE-ROLLER TYPE, REVERSIBLE, SERVING BETWEEN PRESS & STEREOTYPE ROOM
MAT CONVEYOR & CHUTE HANDLING MATS TO STEREOTYPE ROOM
ROLL ELEVATOR 99 FT. CTO CTR. 77' P.D. SPKTS. SPEED 36 F.P.M. CAPACITY 3 ROLLS PER MIN.
PLATE CONVEYOR UNLOAD
REEL ROOM
4-BUNDLE CHUTES
PLATFORM FOR DISTRIBUTION TO TRUCKS
TRUCK ROADWAY
STEROTYPE ROOM
ROLL LOWERING SKID DOUBLE CARRIERS, CARRIERS OPERATE ALTERNATELY, ONE ASCENDING WHILE OTHER DESCENDS. CAPACITY 3 ROLLS PER MIN., CABLE SPEED 250 FEET PER MIN.
APRON CONVEYOR TO SERVE REEL ROOM FROM ELEVATOR
GRAVITY SCALE SECTION
GRAVITY SECTION FOR STRIPPING
SMOKE CHAMBER
CANAL STREET
GROUND FLOOR + 15'-6"
ROLL STORAGE
BASEMENT FLOOR + 4'-0"
4'-0"
12 FT. CARRIER SPACING
ROLL STORAGE
PRESS ROOM
4-BUNDLE BELTS WITH TABLE TOPS FOR BUNDLING PAPERS & DISTR
RAIL ROAD TRACKS
UNLOADING DOCK
ELEV. +5'-0"
ELEV. 0
CHICAGO RIVER
TURN AROUND CONVEYOR TURNS ROLLS THROUGH 90° & AUTOMATICALLY LOADS ELEVATOR LOAD & UNLOAD ROLL STORAGE
LOAD & UNLOAD
ROLL STORAGE
SPEED 36 F.P.M.
LIVE-ROLLER CONVEYOR & CROSS-LIFT AUTOMATIC LOADING TURN AROUND CONVEYOR FROM EITHER APRON
CTO 120 & 100-FOOT APRON CONVEYORS SERVING STORE ROOM & FOR RECLAIMING TO ELEVATOR
SUB BASE FLOOR
PUMP ROOM FLOOR
TUNNEL APRON CONVEYOR FOR ROLLS. SPEED 40 F.P.M. 217'-7" CTO CTR SPROCKETS
TUNNEL FLOOR
LIVE-ROLLER CONVEYOR & CROSS-LIFT CONVEYOR AUTOMATICALLY LOADING ELEVATOR
AUTOMATIC LOADING TO APRON
ELEV. -41'-0"
ELEV. PIT -55'-0"

Fig. 1—Side elevation showing location of conveyors and elevators.

The railroad tracks are so located that rolls can be taken from the cars and put into storage without going through the first portion of the conveyor system. There is also a loading station on the ground floor with a turntable arrangement, so that rolls can be loaded to the elevator from trucks, or they can be unloaded from trucks direct to the reel room.

Much of the paper comes from the mills by boat, which carry 1200 to 1500 rolls, and it is desirable to unload them in one day. The paper is rolled onto the unloading dock and then placed on the lowering skip. These rolls run in three sizes, the maximum being 40 inches in diameter, 6½ feet long, and weigh 2200 pounds each. The skip is equipped with double carriers operating alternately, one ascending while the other descends, and this skip has a capacity of 3 rolls per minute, with a cable speed of 250 feet per minute. On this operation the rolls are lowered approximately 46 feet.

After the rolls are discharged automatically to the apron conveyor they travel for approximately 220 feet at a speed of 40 feet per minute, through a tunnel passing under the building.

The apron conveyor carries the rolls lengthwise, and when they discharge to the roll elevator they must be carried with the length across the carrier fingers, so it is necessary to transfer from the tunnel apron to the loading fingers automatically and at right angles.

As the roll leaves the tunnel apron it is fed onto a series of live rollers which are chain driven. The roll comes in contact with a bar which actuates the switch, stopping the live-roller conveyor and starting the motor on the lifting mechanism, which raises the cross conveyor so as to take the roll of paper off the live rollers and at the same time propel it forward, discharging onto the loading fingers of the roll elevator. The roll elevator is 100 feet between centers of sprockets and has a speed of 36 feet per minute, with a carrying capacity of 3 rolls per minute.

On the rolls storage floor it is necessary to take the rolls from the elevator and distribute them to the storage area,

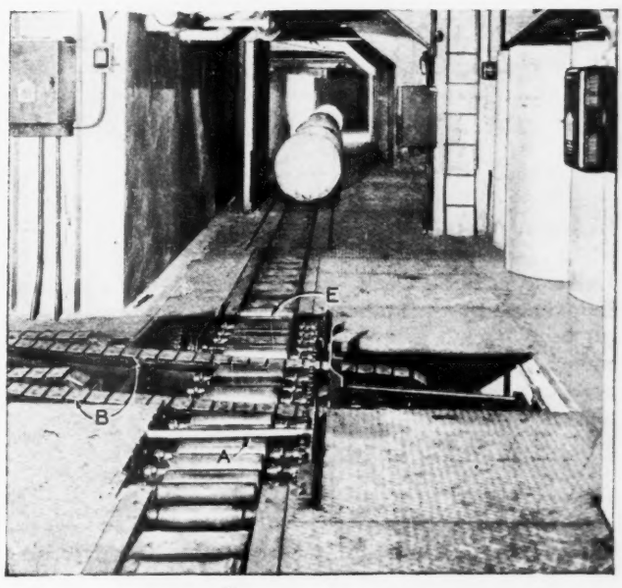


Fig. 2—Taking rolls out of storage.

*Sales Engineer, Alvey Ferguson Co., New York, N. Y.

Abstract of a paper presented at the Third National Meeting of the A. S. M. E. Materials Handling Division, Chicago, Ill.

and also reclaim the rolls from storage, reload them on the elevator, and carry them to the reel room. A view of the special conveyors in this operation is shown in Fig. 2. The rolls are seen being reclaimed from storage and being transported on an apron conveyor. The cross-lift conveyor is depressed and the live rollers at the transfer point are turning. The live rollers run continuously except when the cross lift is up. When the roll comes in contact with cross-bar A, the live-roller conveyor is stopped and the lifting mechanism of the two-strand chain conveyors marked B is automatically passed onto the two-strand chain conveyor which will carry the roll around a 90-degree curve and discharge it to the loading fingers of the vertical elevator. The roller marked E is also attached to a switch which stops the apron conveyor in case the rolls are too close together or the cross-lift mechanism is raised. These conveyors are all protected with automatic electric stops. These conveyors all have to be interlocked so as to prevent congestion or jamming.

It is unusual to see chain conveyors operating round a 90-degree curve, but the operation is entirely practical as is demonstrated in this installation. Of course, the conveyors have to be designed to fit the operation and sufficient radius must be allowed so as not to distort the chain. When discharging rolls from the elevator for storage on the basement floor the operation of the conveyors is reversed.

The unloading on the first floor or at the reel room is simple. As the apron conveyor passes in front of the elevator and with a simple discharge, the transfer is made direct to the apron or, if desired, skids can be placed over the apron and discharge can be made to a car. In this room the paper is weighed and stripped ready for the presses.

To handle these rolls with electric trucks or tractors and trailers would necessitate the use of freight elevators, and the labor cost would be higher than with mechanical conveyors. The speed of 3 rolls per minute is ample and permits quick unloading of barges and cars.

The newspaper presses are, in a sense, conveyors of the paper from the roll to the folded news sheet, but after the sheet is folded mechanically it is conveyed by special conveyors, as shown in Fig. 3. After the papers are bundled they are again discharged to belt conveyors which carry the bundles to a chute where they drop one floor to the truck-loading platform.

To the right of the bundle conveyor shown in Fig. 3 is a live-roller conveyor for handling stereotype plates. The rollers are driven by a friction belt, and the plates resting on the rollers move forward. The steel plate over the rollers acts as a guard for the plates, and also permits operators to step over the conveyor without danger. In this plant there is a battery of four of these conveyors for handling plates to the four lines of presses, one bay being shown in Fig. 3. There are also four belt conveyors for handling bundles of papers after they are tied, and the table over the top of the belt is used for some of the tying-up operations.

This installation is a striking example of what can be done on a special handling operation.

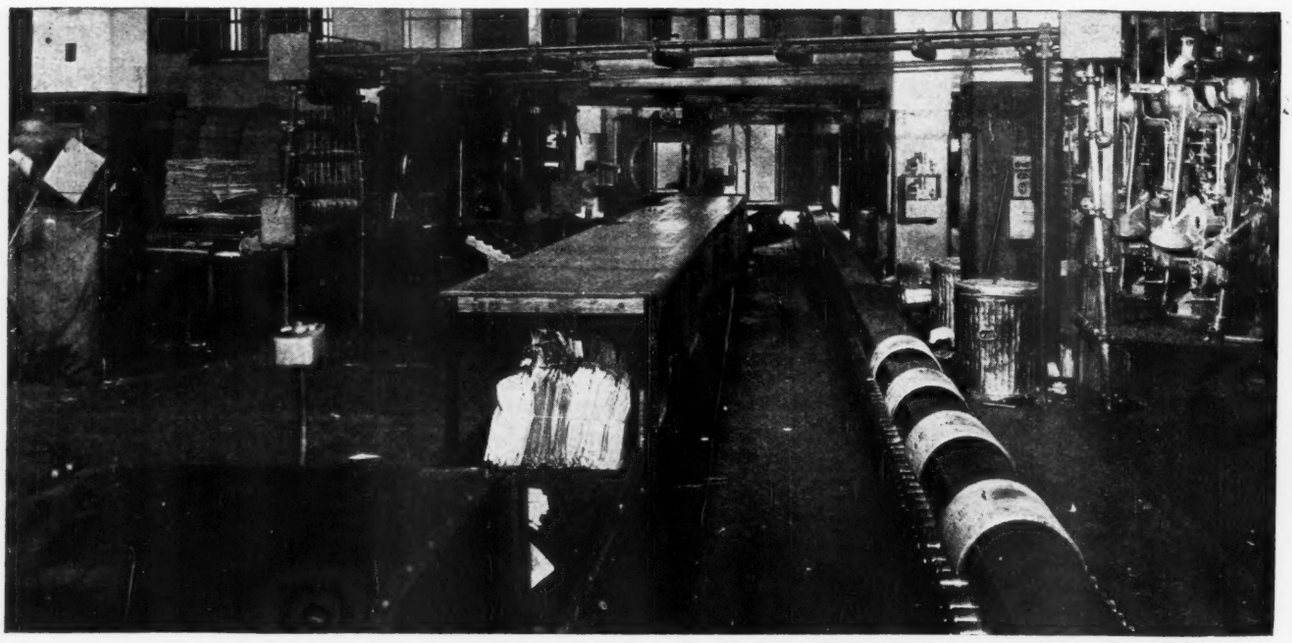


Fig. 3—Partial view of press room showing plate, paper, and bundle conveyors.

Karnak by Ludlow

Karnak Medium, a new typeface of Egyptian character, is announced by the Ludlow Typograph Company, the design being shown herewith. This typeface is of extreme simplicity of design, flat serifs being added to elementary letter forms practically montone in color.

KARNAK MEDIUM
the new typeface of

Karnak Medium offers one more novelty for advertising and display composition. The size range is 14 to 48 point. Matrices will be ready for delivery in April.

Cause of "Hair Lines"

No matter what the cause of hair lines may be, it rarely destroys an entire font of line-casting matrices within a short period of time. As a matter of fact, hair lines begin to appear on the most frequently used letters at first and if the proper amount of vigilance is used in the composing room by carefully scrutinizing the printed product, the destruction of entire fonts of matrices can usually be prevented by weeding out immediately the letters which show the first indications of hair lines, thus reducing the spreading of this evil. It is more economical to replace a few damaged matrices at once rather than permit them to destroy a great many others.—*Who's Who in the Composing Room.*

Composing Room Executives

Earl H. Barker, Superintendent, Composing Room, "Akron Times-Press," Golf Enthusiast and Raiser of Gladioli of Rare Excellence.

BECAUSE no mailman ever lived who could tootle a French horn filled with egg-and-tomato sandwich, Earl H. Barker is the composing room superintendent of *The Akron Times-Press.*

It happened thus:

Some 22 years ago, Barker, then sixteen, was a student in a Canton business college. Followed the business of discovering that he was not destined to be a master of commerce, so an understanding father aided his son to find a job.

The *Akron Press* had just been born. As a matter of fact, it hadn't begun publication. But its composing room needed a good boy with a strong back and at least one gleam of intelligence in his two eyes, and when the newspaper sent out its first edition, in February, 1908, Earl was "deviling" in its composing room.

The years passed, as years have the habit of doing. Young Barker became a full-fledged compositor. Then he succeeded to the assistant foremanship of the composing room, and ten years ago, he took over the big job of the mechanical department.

At 38, Barker is superintendent of the *Times-Press* composing room, with some 60 men under his supervision. Not so long ago the newspaper equipment was housed in a new building, the composing room of which is about 140 feet from wall to wall.

Mr. Barker, who is a progressive sort of fellow, always ready to give any innovation a trial if he can see increased efficiency in the offing, has introduced an honor system in the composing room. He has to say very little, for the shop runs as he wants it to run, regardless.

"We have all but eliminated labor turn-over," he explains. "There are only a scattered few men in the composing room who have not been there five years or more. They know how we do things. They are on their honor to produce results, to give the company a 'square break.' And they live up to the trust without exception. I don't have to be on the job every minute of the day. I don't have to worry when I'm out. I know that the boys will produce just as well as though I were there. They make out their own clock cards. They regulate themselves. I can trust them to manage their various duties just as I would have them do. This gives me greater freedom, and contributes to the maintenance of a happy and efficient organization."

Mr. Barker's honor system seems to work out. His page cost is one of the lowest in the Scripps-Howard organization, where the drive for conservative mechanical efficiency has been constant.

Composing room efficiency is Barker's real hobby, but he takes time out for a regular round of golf at Brookside Country Club, where he is a member. And the average summer evening will find him out in the garden, at his home in Mogadore, just outside of Akron, where he raises gladioli of rare excellence. He also is a Blue Lodge Mason and a member of the Yusef Khan Grotto of Akron.

Metal Market

	February 16	*March 16*
Straits Tin	25.80	27.15
Electrolytic Copper	10.00	10.12
Prime Western Zinc	4.00	4.00
A. S. & R. Lead	4.50	4.50
Antimony	7.10	7.37

Metrothin Small Capitals

The latest development in the Linotype Metro family, as announced by the Mergenthaler Linotype Company, is a cutting of Metrothin small capitals in the 6, 8, 10, 12 and 14 point sizes—the first time small capitals have been offered in any of the new Sans Serif type families.

The Merganthaler announcement states that these new

BRIEF SHOWING OF THE NEW METROTHIN SMALL CAPITALS, IN THE 14 POINT SIZE.

small capitals have been cut in response to requests from commercial printers who have been using Metrothin for considerable program and general business printing and who believe the new characters can be used to advantage by them in such work, particularly in presenting proper names.

The new characters are available in one-letter matrices for use in the auxiliary casting position.

Your Questions Answered

Will some of our readers help us by answering the following questions? Replies will be acknowledged and forwarded, and due credit given for the one giving the reply.

M. N. writes: "I have been having trouble on an 8-page form with 2-point rules at the head of each page. Have done everything I know to eliminate a slur on these rules. The brush, guides and make-ready seem to be all right.

J. E. writes and wants to know why he can't adjust the mold disk turning pinion brake on an Intertype so that it will hold its adjustment for any length of time. It seems there are three molds in the disk. After swinging from one mold to another, the brake does not function properly.

A. C. asks, why, on a Model 26 Linotype, thin matrices drop low enough and catch between the ends of the primary distributor box rails and the bridge. The thin matrices referred to are principally 6-point periods, commas and thin spaces.

Plate Troubles

R. R. T. is having plate trouble and asks (1) If it is necessary to raise halftones above 0.918 inch for newspaper use? Also what is the general practice in regard to this? (2) How do results of tub etching compare with machines? Does the enclosed cut seem to be etched properly? (3) Can you give me any information on the latest engraving equipment?

Answer—(1) It is not necessary to raise the cut above type-high, but the general practice of most stereotypers seems to be to underlay cuts with from one to two sheets of newsprint which will raise the cut from 0.003 inch to 0.006 inches, one or two thicknesses should be used according to the size of the cut. (2) Very good, if the etcher knows his business. Of course, the machine is an advantage to a good etcher because he can do better work and more of it. The elimination of acid fumes alone should warrant the use of a machine in a modern shop. Would say the cut submitted was not etched properly as it is but 0.0045 inch deep. See article in this issue which should cover your difficulty. (3) Write any good dealer in engravers' equipment and he will gladly furnish you the desired information.

Model 26 Distributor Stops

J. E. requests some information relative to a Model 26 Linotype distributor. Matrices lie flat on the channel entrance partitions of both distributors and some of the matrices carry over channels into which they should drop. The lower end of matrices swing slightly while being conveyed across the bar.

Answer.—Inspect what would be the lower distributor screw gears and spiral automatics of both upper and lower distributors. The purpose in doing this is to see if the stop pins in both the automatics and gears are straight. The straightness of the stop pins will affect the relative position of the driving face of the lower screw thread with the driving face of the upper screws. Also see if the distributor is level or a trifle higher at the clutch side than it is at the box side. This is to cause the lower lugs of matrices to contact with the distributor lower screw thread and prevent them swinging while being conveyed to their channels. Finally, run up several matrices of a lower case letter, preferably lower case "f," turn the distributor screws slowly by hand. As each matrix drops, it should strike directly upon the first or right-hand partition (back view facing back of distributor) of the channel into which it should drop. It might also be well to note whether the screw guards clear the matrices.

Poor Face on Monolith Border

In the March issue, J. A. wrote: "On a Monotype material-making machine we are having trouble getting a good face on a 12-point border, which in our shop is called Monolith (rather fine cross lines). It shows "spotty" when a proof is taken. How can this be overcome?"

Answer—The spotting referred to on 12-point Monolith border is sometimes caused by metal being too hot or if there is too much pressure on the piston spring. Also, moving the closure opening toward the back of the machine is a great help. A center opening does not lend itself readily in obtaining sharply cast faces from any matrix. Heat, water and speed of machine must be adjusted carefully in order to avoid spitting.

Linotypes and Humidifiers

G. G. sends in the following communication: "Our shop equipment is contained in one large room. If humidifiers were to be installed for the benefit of the pressroom and the humidity would be kept at 40 to 50 per cent, what effect, if any, will this condition have on the Linotypes?"

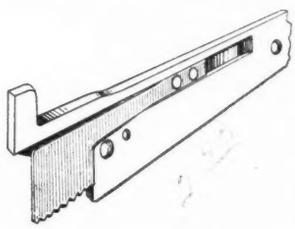
Answer—According to the opinions of several people who have had experience with humidification apparatus under conditions similar to yours, there would be no appreciable effect upon the working qualities of the Linotypes. It is possible that if one of the heads were located above or in the

Continued on page 20

Distributor Box Rail Spring

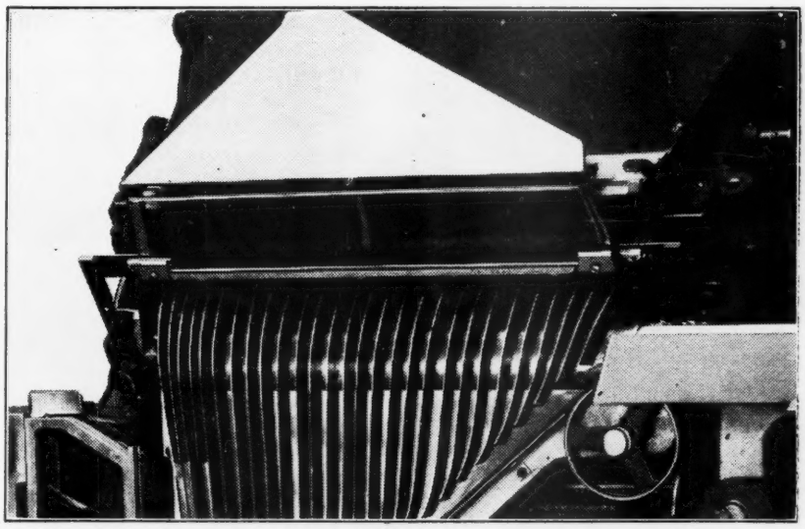
By E. A. McCaddon*

On Linotype Models 25 and 26 (first style distributor) we experienced some trouble with matrices tilting slightly as the primary distributor box matrix lift raised them into the primary distributor screws. I corrected this by making a new primary distributor box front plate upper rail spring from a piece of flexible-hack saw blade, about 0.025 inch thick. The spring is not hard to make and the accompanying drawing will give a very good idea as to its construction. It is riveted to the recess in the spring slot in the regular manner. The extension (the right side of which is beveled), has a slight pressure against the front side of the matrices and functions as though it were part of the rail. The spring should be flexed enough so that it will protrude from the rail about 1/32 inch. We have been using spring of this style on several machines containing matrices from 5 to 36-point, and find that matrices are held steady on the lift.



*Machinist, Zanesville Publishing Co., Zanesville, Ohio.

LINOTYPE LEADERSHIP



THIS COVER OFFERS NO OBSTRUCTION

There's no danger of obstruction or protruding points in the Linotype assembler entrance cover, because of its substantial double-hinge type of construction.

The operator or machinist may reach the magazine front easily and quickly by simply swinging the cover back to rest on the magazine, where it lies flat at all times.

It's then completely out of the way—nothing obstructs the view of the magazine front, nothing protrudes to offer chance for injury. The cover lies flat even though the lower magazine is in operating position.

Many other features and advantages of Linotype construction are illustrated and described in the 56-page book "Linotype Leadership." If you haven't a copy, it is available on request. Write the nearest agency.

TRADE LINOTYPE MARK

MERGENTHALER LINOTYPE COMPANY

BROOKLYN, NEW YORK · SAN FRANCISCO · CHICAGO · NEW ORLEANS · CANADIAN LINOTYPE, LIMITED, TORONTO, CANADA

Representatives in the Principal Cities of the World

LINOTYPE METROBLACK AND METROLITE

Wood Coated Mats
"Easy to Mould"
"Easy on Type"

ADD the Wood Coated Mats to your equipment and you will find it easier to produce a better printed paper. That has been the result in one plant after another throughout the country, where it was thought that the dry mat had just about reached its highest point of efficiency — until — Wood began marketing the New Process Coated Mat.

Says one Stereo Foreman:

"After two months' trial of the New Process Coated Dry Mat, I find I have a mat that I have looked for, for over sixteen years; that is, one that would not blister or peel and flake on the face, one that did not wrinkle or creep in moulding. . . . The New Process Coated Mats have eliminated all these faults and will give all the casts needed."

Send us a request for samples so you can "be shown."

WOOD
FLONG CORPORATION
HOOSICK FALLS, N.Y.

immediate proximity, that some of the moisture emitted (if not diffused) might fall on a machine and tarnish it somewhat. It seems that if a humidifying system is correctly installed, has efficient controlling devices and is operated properly after installation, that it would be an advantage rather than a detriment to the operation of the machine, because constancy of temperature conditions would prevail. There is a noticeable difference in the operation of a line-casting machine where temperature and humidity conditions vary from one extreme to the other.

An authority on air conditioning systems tells us that it seems in some localities a humidity of 40 per cent to 50 per cent will not rust any machinery. Humid air (40-50 per cent) is no different in the winter than in the summer and most plants never complain of rusting during the summer time. If the inquirer is permitting the room to cool down over night the machinery will also become chilled. When the room temperature and humidity are brought up the next morning a condensation will appear upon the machinery because it (the machinery) will not warm up as rapidly as the surrounding atmosphere. By all means, the temperature should not be permitted to drop below 60 degrees. If possible, a minimum temperature of 70 degrees should be maintained. This will certainly prevent any condensation.

VICE AUTOMATIC TROUBLE

By Norman Bellville

In our March issue, M. G. requested a solution for trouble he is having with an Intertype vise automatic adjustment. He says adjustments have been made in accordance with the Instruction Book, but that the machine stops at ejecting position.

Norman Bellville, line-casting machinist, replies as follows:

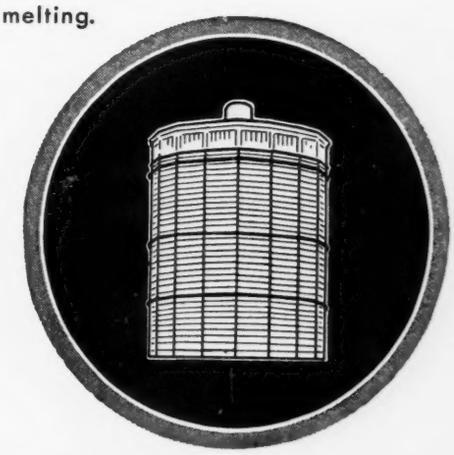
"In respect to this trouble, you will probably find it necessary to perform an unusual operation on one of the crowns of the vise closing (second justification) cam by cutting away the cam face for a distance of about 5 inches and to a depth of 1/32 inch. The reason for this is that the vise automatic stop rod extension, through the vise closing lever, does not depress the stop rod pawl at ejecting position sufficiently to clear the forward-moving dog in the vise frame. If, on the other hand, you were to bend the extension toe so as to cause the pawl to clear the dog at the time the mold disk moves forward for ejection of the slug, more than likely the rod pawl would not be permitted to rise high enough so as to shut off the machine while the first elevator is descending with an overset matrix line into the vise jaws. The place to trim the cam is that 5-inch stretch against which the vise-closing lever cam roller has contact when the machine is at normal position and also permits the vise-closing lever to rise slightly as the machine is normally starting to convey a matrix line from normal to casting position on the vise cap. The slight rise of the vise-closing lever permits the automatic stop rod to rise through its connection by means of the rod extension. This movement is necessary so the stop rod pawl will obstruct the forward movement of the dog or plunger in case of an overset matrix line to shut off the machine. Before trimming the cam, see that there are no flat spots on the vise-closing lever cam roller.

"It will not be necessary to remove the cam from the machine in order to trim it. Run the machine ahead until the second elevator has started to descend and shut off the lever. The cam will be in such a position that the space to be cut away will be on top. Criss-cross the cam surface with a hacksaw, chip out with a small cold chisel and dress smooth with a file.

"After having cut away the cam, bend the stop rod extension toe sufficiently to cause the vise-closing lever to

GAS HEAT FOR SOFT METAL MELTING

GAS provides the best possible heat for soft metal melting operations: it quickly attains the proper thermal head, and—what is at least *equally* important—it maintains it with a tolerance of but few degrees. The new book "Gas Heat in Industry" contains definite information about the application of gas to soft metal melting. You should have a copy.



AMERICAN *Gas* ASSOCIATION

420 Lexington Avenue, New York

GAS FOR HEAT
WHEREVER HEAT IS NEEDED

"'Economy' was too Expensive"

■

In *Editor & Publisher* for March 14th, 1931, the International Printing Ink Corporation in its advertisement, told of a publisher "who changed his mind . . . and brought home the bacon."

■

They brought home the story which we ourselves have been bringing home to many publishers: that there is a brand of "economy" which is expensive.

■

By going back to better ink, better newsprint, better metal and better mats publishers are able to produce better papers—clearly and cleanly printed papers—which are easily read and make for happy and contented readers and advertisers. Certified Dry Mats have always been made and sold on the basis of printing quality—with one price to all without discrimination or favor. Certifieds have not and will not be cheapened in quality to be sold at a price.

■

If you are not satisfied with the appearance of your paper, and if your readers and advertisers are complaining, we respectfully suggest that you try a case of Certified Dry Mats in your stereotype foundry. And back to better ink, better newsprint and better metal, too. That's true economy.

■

Forget price! Use quality at the right price! It pays.

CERTIFIED DRY MAT CORPORATION

338 Madison Avenue New York

For dependable stereotyping—use Certified Dry Mats

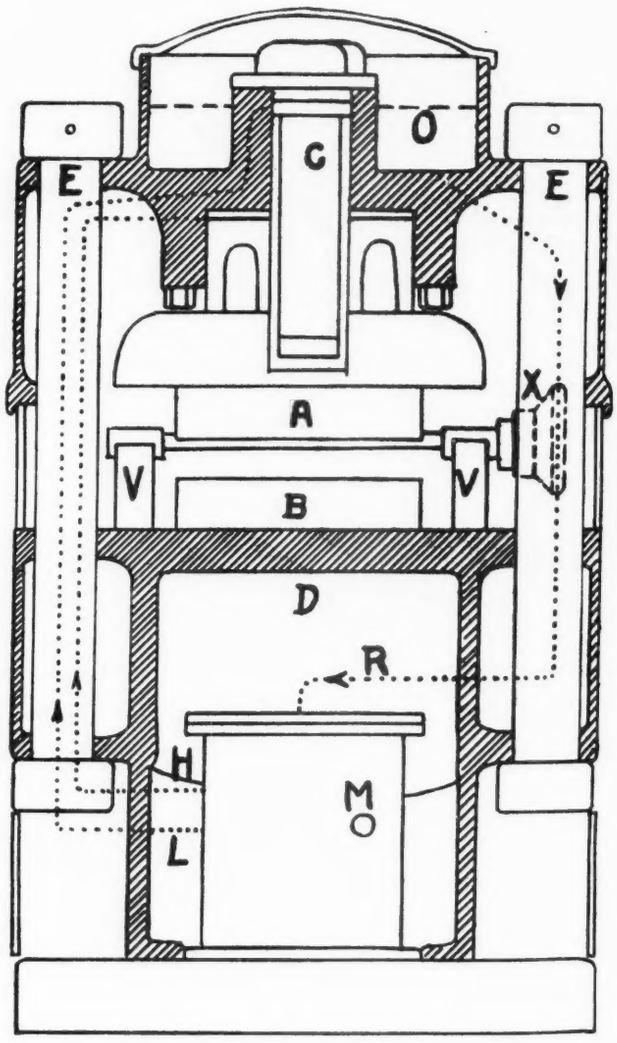
Made in U. S. A.

depress the stop rod pawl so as to clear the dog when it is moved forward by the mold disk as the machine comes to transfer-ejecting position. After having adjusted the extension toe, note whether the pawl is in high enough position to obstruct the forward movement of the plunger or dog as the first elevator is descending to the vase cap. Then make the vise automatic rod adjustment in the normal manner."

Hydromat Explained

LAST month we presented for our readers an exclusive description of Hydromat, the new direct pressure magazine and newspaper hydraulic matrix molding press which has been developed by Paul Zars and John Zimarika of The Portage Machine & Engineering Co. A company has been formed to market the press and will be known as The Electro-Hydraulic Machinery Co.

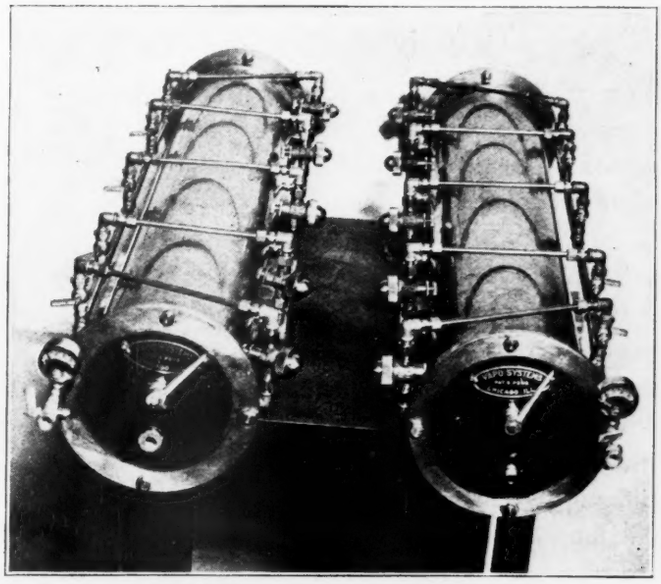
The working principle of this new mat press is illustrated in the cross-sectional diagram. The type form or other matter is placed upon the fixed platten *B* under the movable platen *A*. The lower platen *B* rests on a heavy electro-nickel steel casting of generous dimen-



Cross-sectional diagram of Hydromat, the new direct pressure hydraulic matrix molding press. The accompanying article fully describes operation of the various parts.

. . . This High-Speed Web Conditioner Gives You These Economies . . .

Are you interested in reducing web breaks to a minimum, at the same time saving five to ten per cent on ink consumption? Do you want to get clearer and blacker impression without ink pulling? Would you like to increase delivery at the fly through uninterrupted running of the press?



If you are interested in the above economies, you will want to investigate Vapo Systems. In addition to the above savings, this High-Speed Web Conditioner and paper storage room humidifier enables you to cut down on paper waste (perhaps use a lighter paper) and operate the speed of your press at a maximum; at the same time eliminating static electricity, and flying ink particles and paper dust. The same device also adds efficiency and life to blankets due to fewer wrap-ups.

All of this sounds too good to be true, yet the Vapo Systems actually gives these economies. Newsprint leaving the mill contains the correct moisture content. Climatic changes and varying temperatures en route and in storage rooms cause a loss of moisture. As a result, the terrific strain of your high speed presses on paper of improper moisture content causes paper breaks, loss of time in rewebbing, delays, interruptions, increase in ink consumption, poor impressions, ink pulling, static, etc.

As a High-Speed Web Conditioner, the steam or water vapor is applied directly onto the web by means of Vapo Systems Heads. These heads are brass cylinders 30 inches in length and five inches in diameter, one located near the unwinding roll spraying one side of the paper, the other head farther up on the framework spraying the opposite side of the paper just before it contacts with the printing cylinders. A series of five small jets are employed to govern the direction of the vapor spray which is obtained through properly controlled air pressure. The heads are controlled by air or electrically-operated valves synchronized to the different speeds of the press.

Vapo Systems is already in operation in several leading newspaper plants. Installation and operating costs are low. Write today for complete and detailed information on a 30-day installation in your plant.

Vapo Systems
Incorporated

211 WEST WACKER DRIVE **CHICAGO, ILLINOIS**

BURGESS

"CHROME" MATS

A LABORATORY PRODUCT

DRY MATS

Burgess "Chrome" Dry Mats have become well known throughout the newspaper field for their ability to secure plates which give wonderful printing results. The type is clear and sharp—the solids black—the halftones full of detail.

Burgess "Chrome" Dry Mats come to you mill conditioned to give the shrinkage you may require. This does away with the old moistening equipment and trouble you have experienced in conditioning your mats in your own plant. All that is necessary, now, is a good storage box that will insure your mats being kept in proper condition until used.

Burgess "Chrome" Dry Mats will assist materially in insuring that the expensive copy of your national and local advertisers reaches your readers in the most presentable manner.

If you are not using Burgess "Chrome" mats, you are invited to write for samples.

Please mention the type of casting box that you use; also the shrinkage desired, so that we can forward you the correct mats, properly conditioned, ready to use.

It will pay you to do so, for if these mats can give you better results . . . and the experience of several hundred publishers, printers and advertisers proves that they will . . . they are the mats that you should be using now.

Won't you write . . . today . . . for samples?

As a further convenience and service to our customers, we are in a position to take care of your requirements for Stereotype Department Accessories of all kinds.

STEREOTYPE MAT DIVISION

C. F. BURGESS LABORATORIES, Inc.

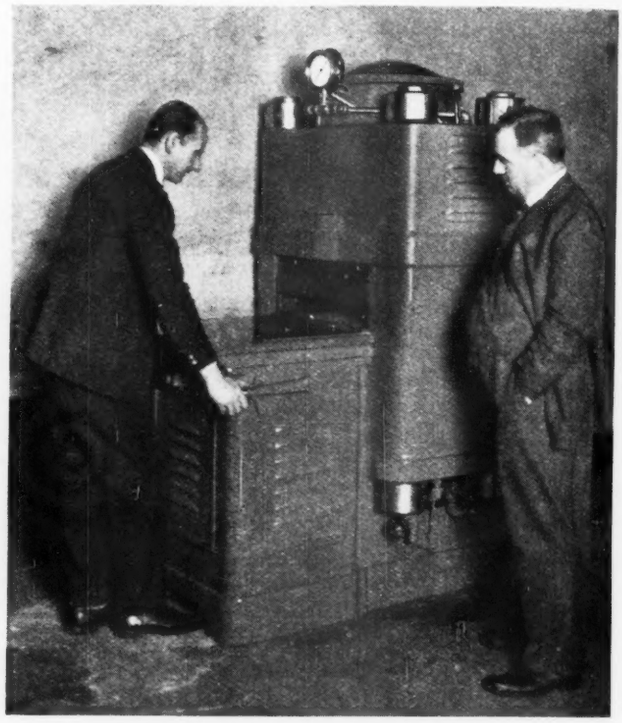
Manufacturers of cellulose, acoustic and electric products

111 W. Monroe St. Chicago, Ill.

sions while the upper platen moves up and down with the piston.

An unusually long guide *C* provides perfect parallel motion and assists greatly to take every strain of the packing.

The cylinder, carrying on top the oil reservoir O, is mechanically connected to the lower yoke by four



Paul Zars (left) and John Zimarika (right), developers and designers, before Hydromat 18, the new direct pressure hydraulic matrix molding press. This particular press is used for magazine and book work and is equipped with an 18-inch ram, capable of exerting up to 500 tons pressure.

special high carbon steel 4½-inch columns *EE*. A motor-driven pump *M* delivers the oil under pressure up to 150 pounds per square inch through line *L* into the upper part of the cylinder for fast motion, and oil under pressure up to 5000 pounds per square inch through line *H* into the main piston.

The piston on its downstroke comes to two adjustable stops *VV*, thereby leaving between both press platens *AB* exactly sufficient space for the set, the mat and a special elastic cushion. These stops *VV* can be adjusted by the means of a hand-wheel *X*, which is graduated to one-thousandth of an inch. It is claimed that the press works entirely independent of the size or nature of the set.

The manufacturers also claim that mats pressed by this process show perfect, even and exceptionally deep impressions hardly achieved before on wet mats. The cut cannot be crushed nor can the elastic cushion be overstrained, which will insure long life. The press, however, may be used in the old way, *i. e.*, with cork or felt cushions, independent from the stops *VV*.

Speaking of type sizes, 72 point measures .996". Usually it is considered the equivalent of one inch.

Rollers

When ready to make ready, after the sheet to be marked out is delivered, the rollers rest on the form. We have seen pressmen spend from one to four hours making ready, who did not raise the form rollers. Then they grumbled because the highlights were streaked.

It seems to us some pressmen do not realize how sensitive composition rollers are. How they absorb moisture, then dry out; the power of glycerine thereby being lost. When there is excessive humidity, rollers should be carefully set at least every two days. We are sorry to say we have seen presses run for weeks (with halfton forms) in damp and dry weather, and the rollers have never been given a thought.—*Roy W. Curbow, in American Pressman.*

Monotype Broadens Sans Serif

The Lanston Monotype Machine Company has provided a set of ten Alternative Characters and a set of twelve Special Characters to be used with Monotype Sans Serif Light, Medium and Bold. The original, the Alternative and the Special characters are here shown in Montoype Sans Serif Bold.

By substituting either of these sets of characters for the same letters in the font as originally designed a new type face of distinctly different characteristics may be made. Thus, from the orginal font and the two sets of characters

Monotype Sans Serif Bold

JOURNEY TO MEXICO AND WEST Indies. See the great jungle cities and the mountain fortresses; the bridges that span the

With Alternative Characters

AJWYaegjtu

JOURNEY TO MEXICO AND WEST Indies. See the great jungle cities and the mountain fortresses; the bridges that span

With Special Characters

AEFKMNRSWeks

FRANK NEWS FOR MEDITERRANEAN from Losky this year. Boats leave New York on the fifth day of February, March and April

three Sans Serif faces are available, each essentially different from the other two. While the making of Alternative and Special Characters for use with a type face has no element of novelty, it is believed no attempt has heretofore been made to provide additional characters by means of which it is possible to make three type faces from one basic design, nor with such happy results.

The Monotype Company states this is another step toward economy and the fulfilment of its policy to make Monotype users independent of outside sources for the typographic material needed to satisfy the requirements of buyers of printing and composition service.

Every MACHINIST NEEDS THIS TOOL

The Curle Matrix Anvil

TOOL AND GAUGE ASSEMBLY

—is an economical, complete and compact piece of equipment that should be used by every machinist or machinist-operator for reconditioning Linotype or Intertype Matrices. This Tool and Gauge Assembly soon pays for itself. Here are a few of its uses.

It enables you to determine quickly whether a Matrix is worth repairing—it helps you to clean and straighten dirty and bent matrices—it restores worn Matrix Lugs (if not too badly worn)—corrects irregular face alignment—the tapered Gauge provides a means of determining spacing between combination teeth—a spaceband gauge helps determine space band measurements and indicates whether the wedge is distorted or whether the sleeve lugs are too wide.

The Curle Matrix Anvil is the best remedy for Linotype or Intertype Matrices that have become bent in the body or lugs—for combination teeth becoming bent or spread too far apart—for matrices that do not align properly, or cause "blockups" or sticking characters on account of defective lugs.

Aren't these reasons enough why you should have a Curle Matrix Anvil Tool and Gauge Assembly? This Assembly means better work in less time—makes your work easier. Prove this for yourself—let us send you The Curle Matrix Anvil, Tool and Gauge Assembly for a 10 days free trial. Send the coupon and we will send the Assembly.

Dealers wanted in United States and foreign countries.

GEORGE L. CURLE CO.,
44th and Zenith Ave., So., Minneapolis, Minn.
Gentlemen:

You may send us a Curle Matrix Anvil for 10 days' free trial. The price is $36.00 f.o.b. Minneapolis, subject to following terms: 3% 10 days, or 30 days net.

Name of Publication .....

Signed by .....

Address .....

City ..... *State* .....

What's New In Equipment

Mergenthaler Improvements

The Mergenthaler Linotype Company announces seven more Linotype improvements:

The galley and galley rail have been given a finish that makes them rust proof and eliminates glare.

The flange on the pot feeder housing has been changed to accommodate an adjusting screw and nut, to permit vertical adjustment of the pot feeder.

The bevel on the front end of lower right-hand knife liner has been changed so that the spring plate will project over the back edge of the bevel. This facilitates the movement of the slug toward the galley.

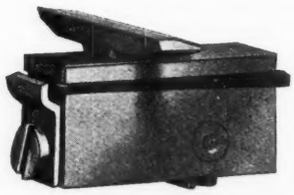
The matrix guide rails on the intermediate channel have been cut away to the full length of line and the quad box lengthened to facilitate the reception of hair spaces in the quad box.

A new back mold wiper embodying the same principles as the one used on thirty-pica models has been designed for forty-two pica Linotypes.

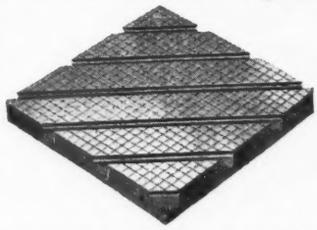
A mold slide spring buffer has been designed to facilitate moving the mold disk back, after casting, compensating for any wear.

The second elevator safety pawl stud has been lengthened at its threaded end to provide for a lock nut. This is to prevent the stud from working loose by the back and forward motion of the second elevator safety pawl.

Merits of Claybourn Base and Hook



The new Claybourn hook is unsually strong. The body is made of steel, heat-treated. One broad-tooth gear of great strength, located in the bottom of the hook, travels on the rack, located in the block great mechanical strength assuring positive plate register. The hook locks with a sturdy mechanical member into a heavy shoulder or slot in the block, the lips of which are guaranteed not to break under operating conditions. But one tool is used to move the hook. The base is 6 inches square and is supplied in fractions thereof. Can be had with 6 or 12 grooves. Both sizes can be used together in same lock-up, meeting plate conditions. Blocks match perfectly because they are held in place by dowels which fit tightly into the holes on corresponding base. The base is made of malleable forging, which, the manufacturers claim, is the toughest, most wear-resisting metal practical for this use. It is cadmium plated to prevent corrosion.



Like all other Claybourn machinery, this base and hook is precision-built—made accurately to provide perfect, sustained and even impressions.

Temperature Control

means solid slugs . .

● Monomelt is the modern system of single melting of type metal. By pre-melting all metal before it is fed to the lower pot, Monomelt is able to take as its metal supply dead slugs directly from the kill-out. Sensitive thermostatic governors keep the metal under constant automatic control.

● A fixed metal level is maintained — and just the right amount of metal at the ideal temperature is fed with each cast. Hot and cold metal troubles, squirts, frosted faces, hollow slugs are eliminated. Monomelt metal control means clean, solid, sharp-faced slugs always. Write for full information. Monomelt Company, 1646 Polk Street, N. E., Minneapolis, Minn.

MONOMELT

THE MODERN SYSTEM OF METAL HANDLING

100 SOLD—
27 IN USE

Cline System Unit Drive Has Been Accepted

THE FOLLOWING PLANTS HAVE ORDERED THESE DRIVES FOR THEIR NEW PRESSES BECAUSE THEY ARE MOST EFFICIENT

Operating—CHICAGO TRIBUNE
NEW YORK DAILY NEWS

Ordered—CINCINNATI TIMES-STAR
WINNIPEG FREE PRESS
—and other well-known plants

Increases Production, Saves Waste, Insures Reliability

(PATENTED IN THE UNITED STATES AND FOREIGN COUNTRIES; ADDITIONAL PATENTS PENDING)

CLINE ELECTRIC MFG. CO.

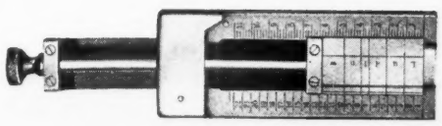
111 West Washington St., Chicago, Ill.

Western Office: First Nat'l Bk. Bldg. San Francisco

CLINE ELECTRIC MFG. CO. CHICAGO SYSTEM

Eastern Office: 220 East 42nd Street New York City

Ludlow's Self-Quadding Stick



The self-quadding matrix stick recently produced by the Ludlow Typograph Company makes possible the automatic quadding out of lines flush to either the right or left side of a slug without labor of justification, and greatly simplifies the quadding out and justification of centered lines.

The original stick was made for slug lines 21 picas or 22½ picas wide. The company now announces the addition of roman matrix sticks with loose side for lines 42 or 45 picas in length, of lining gothic sticks for single or double measures, of solid side italic sticks for single or double measures, and of single slug length casting sticks for 60 and 72 matrices either roman or italic.

The self-quadding stick has proved exceedingly popular with Ludlow users, saving, as it does, so much time in the setting of short lines.

The illustration shows the loose side roman stick for single measure slugs.

With lines set flush, matrices are gathered into these self-quadding sticks, the slide is pushed in, the thumb screw is given a fraction of a turn, and the line is ready to cast. With centered lines the matrices are gathered into the stick and pushed up to the mark at the top indicating the measure being set. The scale at the bottom then shows the number of picas to be inserted at the left. When this is done, the slide is pushed in, the thumb screw turned, and the line is centered and ready to cast.

A New Rouse Band Saw

H. B. Rouse & Co., 2214 Ward St., Chicago, Ill., have brought out a smaller model of the popular Standard Rouse Band Saw which is designed for the smaller newspapers and printing plants which do not require a machine of maximum capacity. This model is known as Rouse Band Saw No. 2. It is a thoroughly proven, efficient device and is an ingeniously simplified version of a famous Rouse product. It is a counterpart in all but capacity of the Standard Saw. Seven inches of variable length slugs can be cut to exact measure in half a minute. Ad slugs and spacing material are cut to desired length by automatic feed. Regular equipment (three blades, tools and 1/3 h. p., 3-phase, 220-v., 60 cycle A. C. or 230 D. C., motor). A guaranteed Rouse product of pledged performance at a new low price. Shipping weight, 550 lbs., net weight 350 lbs., floor space 25x37 inches.

That's Why We Have Trouble With Our Type Metal

"SEE THOSE FELLOWS IN THERE? They are all waiting to put in their bid for our new metal supply. Just as long as we have those fellows in there waiting to sell their metal on a bid basis at so much per pound, regardless of quality, you and I are going to have trouble with our metal. That is the reason why we have such high metal costs.

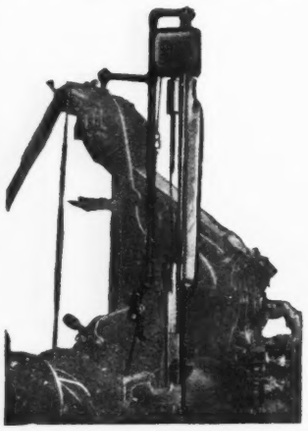
"If the front office would follow my idea of buying highest Quality Imperial Type Metal serviced by the Plus Plan, forgetting this bid business, we would have better looking work, less machine and metal trouble, and at the end of the year we would show lower metal costs than we do now. That is why I believe it best to —

change to

Imperial METAL

THE IMPERIAL TYPE METAL CO.
Philadelphia · New York · Chicago · Los Angeles

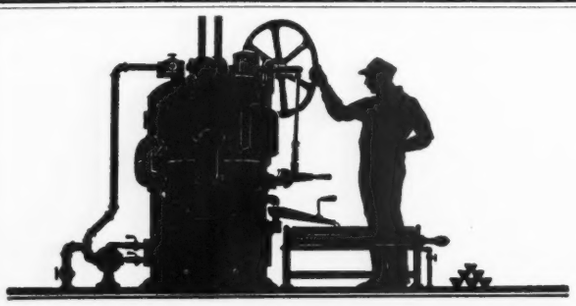
THE MARGACH
Automatic Metal Feeders
for



Linotype
Intertype
Monotype
Ludlow
Elrod

No other article in the Printing Industry can answer its purpose more effectively than the Margach Feeder, which not only sells for the moderate price of $75.00, but its life of 100% efficiency is guaranteed for ten years—and will undoubtedly last indefinitely, 10,000 users can testify to this. Among our sales representatives are the Intertype Corporation, Lanston Monotype Co., and the Ludlow Typograph Co.

MARGACH MFG. CO., INC.
HERMAN DIAMOND, President
213 CENTRE STREET NEW YORK CITY



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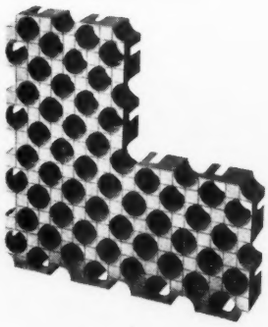
A
PRINTERS' MELTING FURNACE

WITH
THERMOSTATIC CONTROL
OF TEMPERATURE.
ELECTRICITY, GAS, OR OIL
AS FUEL.
AUTOMATIC MIXING AND
STIRRING OF METAL.
DROSSLESS & FUMELESS.
MADE IN CAPACITIES
FROM 500 ~ 10,000 LBS.

WRITE FOR COMPLETE CATALOG P.E.E.

The Monarch Engineering & Mfg. Co.
701 - 702 American Bldg., Baltimore, Md., U. S. A.
Works, Curtis Bay, Md.

Sterling Semi-Steel Honey-Comb Base



Finished Semi-Steel Sterling Toggle Base, Weighing 19 oz.

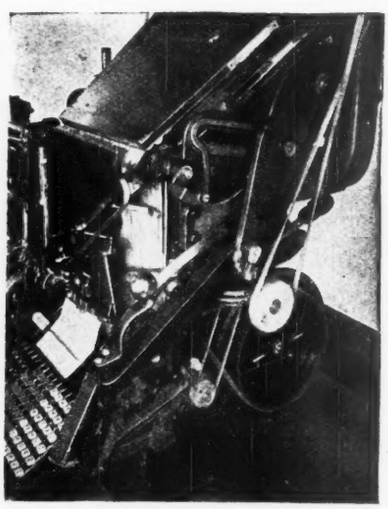
The honey-comb type of metal base, according to the Printing Machinery Co., Cincinnati, O., has found favor with printers doing a certain class of work. Until the announcement of the Semi-Steel Sterling Toggle Hook and Base System, all honey-comb bases were manufactured from die-castings because of the ease with which the numerous holes of the block would be cast into the base.

Close observation of all die-cast, honey-comb bases over a period of time by the engineers of the Printing Machinery Co. convinced them that die-cast honey-comb base lacks the durability and permanency required of a really good honey-comb base. With this information in their possession the company's engineers started to work designing and building the various kinds of machinery required to manufacture the the honey-comb base from a more substantial metal. Over two and a half years were spent designing, manufacturing and perfecting the different machines required to take a solid, semi-steel casting, weighing approximately 5 pounds. After the machines have drilled, reamed and milled the block to required shape and size, it weighs approximately 19 ounces.

Sterling Toggle Ratchet Hook

The Semi-Steel Sterling Toggle Hook and Base Systems carries an unqualified guarantee of 10 years. The manufacturers feel that the life of this base will be as long as that of the press upon which it is used. Along with the Base, the Printing Machinery Co. announced development of the Sterling Toggle Ratchet Hook, which enables book publishers to use the Honey-Comb Base for their type of work.

New Intertype Magazine Shift

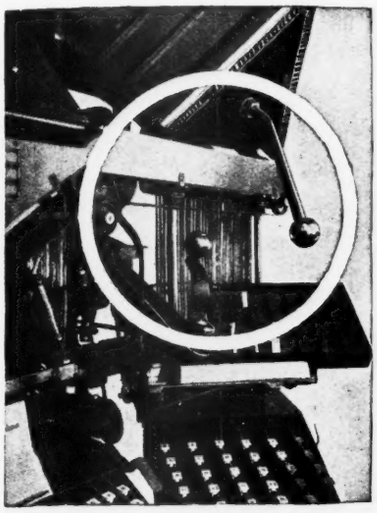


A new invention facilitating main magazine changes is being announced by the Intertype Corporation.

Three turns of a convenient handle now make the change from one main magazine to another. The operator does it, easily and quickly, without moving from his normal seated position at the keyboard. On side magazine Intertypes the main magazines are now changed without swinging out the side unit. Side magazines, too, are changed by the Intertype operator from his seat at the keyboard.

The new shift lessens physical effort and conserves the operator's energy for productive work. It consists of a

simple chain drive, with a gear ratio such that the physical effort required for changing magazines is almost negligible. The device is very simple in construction, with no close adjustments and no special care required for operation or maintenance. The few moving parts are completely housed and protected from dust and dirt.



The crank and lever handles used for shifting main and side magazines are conveniently large and easy to grasp. They are most conveniently located, within easy reach of the operator from his position at the keyboard, yet entirely out of the way while he is manipulating the keyboard.

All Intertype features of easy removal and replacement of both main and side magazines, automatic locking in of the matrices, etc., have been retained. This new magazine shift will be standard equipment on all Intertypes carrying two or three main magazines with or without side magazine units.

New Catalogs, Books and Bulletins

Readers of PRINTING EQUIPMENT ENGINEER who are interested in securing any of the catalogs, books or bulletins listed below can do so by checking the literature desired. Mark carefully only that literature which you wish to receive. Fill out the coupon, tear out the page and send it to us. The literature will be forwarded without cost.

Price List of Chemicals—A 20-page booklet, 4x7 inches and cover, published by Philip A. Hunt & Co., listing all the chemicals used by the photo-engraving and allied trades in the printing industry. Current prices are given.

Linsco Parts and Accessories for Typesetting Machines—A 72-page, 6x9-inch catalog, illustrating and describing parts, accessories and tools for machines of the linotype and intertype class.

Rubber Roller Problems—A folder printed in black and red describing the Cecil "Dust-Less" regrinding unit and the polishing machine. This equipment is for the purpose of grinding and polishing rubber press rollers.

Dullset Inks—A beautiful 8½x11 book done in colors, showing the effects to be obtained through the use of Dullset Printing Inks—"the ink that produces effects superior to water color" as the manufacturers state it. This is a piece of work any executive would be glad to have had the opportunity to study.

Ludlow Typefaces in Newspaper Advertising—A folder-cover, 9⅜x12⅜ inches, housing broadsides demonstrating newspaper advertisement composition by means of the Ludlow in the new Ludlow Tempo Family, Ultra-Modern Italic and Bodoni Black.

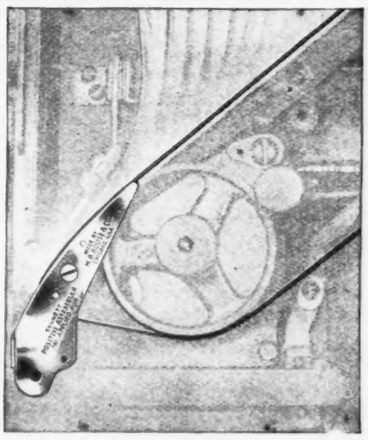
Beard-Shot—An eight-page circular explaining a new kind of metal feeder for machines of the linotype, intertype and Ludlow class, made by the Beard Automatic Metalfeed Co. The electrical equipment in the remelting room drops molten metal into water from which it is conveyed automatically into a hopper. The shot are taken to the composing room, where the feeder on each machine automatically delivers the "shot" into the metal pot as needed.

Vital Facts Regarding Composition—A pretty, 4-page circular with ample margins, done in several colors, demonstrating the advantages to be derived from Ludlow hand-set slug-cast composition.

Monotype San Serif—A four-page black-and-white folder showing Alternative and Special Characters designed for use with Monotype Sans Serif family of type faces.

Girder—Schriftgiesserei D. Stempel, ag Frankfurt am Main. A 28-page booklet printed in red and black, demonstrating the possibilities of Girder Light and Girder Heavy. The typography, which is modernistic, was executed by H. Thannhaeuser for the Continental Typefounders Co.

Printing Equipment Engineer,
1370 Ontario St., Cleveland, Ohio.
Gentlemen:
Please send the literature checked above without obligation.
Name of Company_____
Attention of_____
Address_____
City_____ State_____



Your Linotypes Should be Equipped with this Device

The Sennett Positive Assembler will increase the productive capacity of your Linotype machines 15% to 20%. But that is not all—this device makes easier operation, eliminates readjustments and transpositions. Send in the coupon and we shall send you figures and facts showing how the Assembler pays for itself.

SENNETT POSITIVE ASSEMBLER

H. B. Rouse & Co., 2214 Ward St., Chicago, Ill.

Gentlemen: Without obligation send me figures and facts on the savings to be made by using the Sennett Positive Assembler.

Name _____

Address _____

City _____ State _____

"SAVE THE BOSS MONEY"
THRU STAR REPAIR SERVICE
THOUSANDS OF DOLLARS WORTH OF TYPESETTING PARTS HAVE BEEN PUT IN USABLE CONDITION FOR OUR CUSTOMERS.
ALL WORK IS DONE ON "AN APPROVAL" BASIS.
WE ACTUALLY *BUILD UP* WORN PORTIONS, WHERE NECESSARY, INTRODUCING A NEW TECHNIQUE IN THE REPAIRING FIELD. *ALL* PARTS ARE NOT REPAIRABLE, BUT HERE ARE SOME THAT ARE —

Distributor Box Bars	Back Knives Reground
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WE HAVE THE *ONLY COMPLETELY SUCCESSFUL SYSTEM OF MOLD REBUILDING* IN THE COUNTRY
YOU WILL BE GENUINELY SURPRISED AS TO WHAT WE CAN DO WITH THOSE OLD PARTS
LINOTYPE PARTS CORPORATION
270 Lafayette Street, New York City — 314 West 10th Street, Kansas City, Mo.

IF YOU WANT TO INCREASE YOUR SPEED OR BECOME A GOOD LINOTYPE OPERATOR, WRITE MILO BENNETT FOR FREE CATALOG.
MILO BENNETT SCHOOL, *Toledo, Ohio*

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Type Metal Chemists
Accurate . . . Impartial
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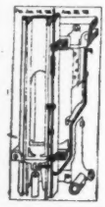
ESTABLISHED . . . 1880
99 John St. New York

Linotype and Intertype Repair Service
Molds—side knives—back knives—1st elev. back jaws—spacebands—dist. box bars—2nd elev. bars—magazines—motors—dist. screws made like new—driving shafts bushed—general repairing of parts. Also make special Linotype and Intertype tools—Matrix ear file gauge $2.50—magazine expander $4.50—magazine broach $4.50—liner cutting gauge $25.00—fiber motor pinions for all makes of motors and special pinions made to order.
William Reid & Co. 537 S. La Salle St. Chicago • Illinois

TRY THIS KNIFE WIPER
AT OUR EXPENSE



For the sake of clean printing, send for a Pettit Linotype or Intertype Knife Wiper. Install it and give it a 60-day trial. It positively prevents all metal shavings and burrs adhering to the type by removing them from the trimming knives. If you don't think it makes a big improvement in your work, return it to us at our expense.
Price $5.00
Superior Manufacturing Co.
P. O. Box R-491 Kansas City, Missouri

Suggested Terminology

THE columns of the trade papers have carried many suggestions as to names for different processes so that uniformity of terminology may result in clearer understanding. From these the following are selected, and are repeated as suggestions:

It is recognized that there are three distinct methods of printing: (1) Typographic, or printing from types or plates in relief; (2) planographic, or flat-surface printing; (3) intaglio printing, wherein the design or lettering is incised or sunk below the surface of the printing plate. When photography is being applied to the preparation of printing surfaces for these three forms of printing, different terms are used to distinguish the methods employed and the printing surfaces produced. The names are suggested:

"Photomechanical method" to take the place of "process work."

"Photoengraving," for both linework and halftone, for the relief engraving which is made use of when printing with type. "Photoengraving" might be divided into "photozinc etching," "photocopper etching," "photozinc halftone," and "photocopper halftone."

"Photoplanography" for all flat printing surfaces made photographically; the application of photography to grained zinc or aluminum plates, when the printing is done direct from them. "Photoplanography," comprises "photolithography," either direct on stone or by transfer, "photoplanography on zinc," either for direct printing or offset, and "collotype." "Photo-offset" is used when the printing is done on a rubber blanket and offset on paper or other material. "Collotype" includes the many methods of printing from gelatin. "Aquatone" is a trade-marked collotype process. "Pantone" is a patented planographic method using a chromium-surfaced plate.

"Photointaglio" includes "photogravure," "photointaglio etching," and "rotagravure." It is "photogravure" either when printed from flat plates or when the flat plates are drawn around a press cylinder. "Rotogravure" is a term applied when photogravure is etched direct on a roll or cylinder and printed from it.

The photomechanical methods for color printing are: "duotone," two printings from the same halftone in different hues of ink; "duotype," two halftones from the same negative etched differently; "duograph," two halftones from the same copy made at different screen angles so that they will not give pattern when printing; "photo-engraving for three-color printing; "photo-engraving for four-color printing;" "photoplanography" for any number of printings either direct or by offset.

THE quality of the type produced by your machines is controlled directly by the quality of the metal in the machine pot.

Use Blatchford Metal « the product with a reputation for unquestioned quality backed by 75 years of metal mixing experience.

Don't neglect your metal. « Keep it in perfect working condition at all times. » Let us help you do this « use our laboratory service. « We will gladly make a chemical analysis of samples submitted by any printer or publisher and render a complete and impartial report.

GOOD METAL IS ALWAYS MORE ECONOMICAL

E. W. BLATCHFORD COMPANY

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LINO - MONO - INTER - LUDLOW - TYPE CASTER - STEREOTYPE

METALS

63 Park Row, New York City

608 So. Dearborn St., Chicago

Unnecessary Operations

In these days, more than ever before, composing room executives are interested in eliminating all unnecessary operations.

If you are not already using the Ludlow system of display composition in your composing room and are casting display types in your own plant, you can eliminate a number of unnecessary operations which are costing you money. These are:

1. Casting types
2. Maintaining a storage system
3. Case laying and case inspection
4. Distribution of larger sizes

The remaining operations in producing advertising display, the actual composition and make-up are faster with the Ludlow system, due to a more logical method of setting and the greater ease of all-slug make-up.

With the Ludlow, the compositor converts the line in the copy into the line in the form, direct from hot metal, without preliminary expense for casting, storage or laying of type. The Ludlow system is the direct system. If you are interested in economical production, you should request the facts regarding the savings it will effect in your composing room.

LUDLOW TYPOGRAPH COMPANY

2032 Clybourn Avenue + + + Chicago, Illinois